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Title of Thesis: "Changes in Cognitive-Behavioral Constructs Across Treatment
                    Modalities for Seasonal Affective Disorder: Cognitive-Behavioral
                    Therapy, Light Therapy, and their Combination"

Name of Candidate: Kathryn Tierney Lindsey
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                    Thesis and Abstract Approved:

_____   _____
Kelly J. Rohan, Ph.D.   Date
Committee Member

_____   _____
Wendy Law, Ph.D.   Date
Committee Member

_____   _____
Martha M. Faraday, Ph.D.   Date
Committee Member

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ABSTRACT

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Modalities for Seasonal Affective Disorder: Cognitive-Behavioral

Therapy, Light Therapy, and Their Combination

Kathryn Tierney Lindsey, Master of Science, 2003

Thesis directed by: Kelly J. Rohan, Ph.D.

Assistant Professor

Department of Medical and Clinical Psychology

Changes in cognitive and behavioral factors have been examined as potential mechanisms of change behind depression's therapeutic response. This study examines cognitive-behavioral factor change across treatments for seasonal affective disorder (SAD). Participants diagnosed with Major Depression, Recurrent, with Seasonal Pattern and a current SAD episode ($N = 35$) were randomly assigned to light therapy (LT), group cognitive-behavioral therapy (CBT), or a combination treatment (CBT+LT). Participants completed the Automatic Thoughts Questionnaire, Dysfunctional Attitudes Scale, Response Styles Questionnaire, and the Pleasant Events Schedule at pre- and post-treatment. Regardless of treatment group, participants' negative automatic thoughts and dysfunctional attitudes improved across treatment, and rumination trended toward improvement. Pleasant event frequency, enjoyment, and derived reinforcement did not change for any group across treatment. Initial dysfunctional attitudes levels did not predict post-treatment depressive symptoms or remission rates. Although differential mechanisms of change between groups were not revealed, cognitive processes appear to change over SAD treatment.

CHANGES IN COGNITIVE-BEHAVIORAL CONSTRUCTS ACROSS TREATMENT

MODALITIES FOR SEASONAL AFFECTIVE DISORDER: COGNITIVE-

BEHAVIORAL THERAPY, LIGHT THERAPY AND THEIR COMBINATION

by

Kathryn Tierney Lindsey

Thesis submitted to the Faculty of the

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INTRODUCTION

Numerous empirical studies have explored changes in mood and behavior across the seasons. Depressive symptoms that co-occur with the fall and winter seasons are experienced within the general population to varying degrees (Kasper, Wehr, Bartko, Gaist, & Rosenthal, 1989). At the extreme end of the seasonality continuum, winter depression, also termed seasonal affective disorder (SAD), has been studied most frequently.

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, APA, 1994) criteria, a Major Depressive Disorder (MDD), Recurrent, or Bipolar I or II Disorder can be diagnosed including a Seasonal Pattern Specifier (i.e., SAD). This specifier is warranted when the Major Depressive Episode (MDE) characteristically begins at a certain time of year and completely remits (or changes to mania or hypomania) at a specific time of the year over at least the past 2 years (APA, 1994). The most common seasonal pattern is fall/winter onset and spring/summer remission of depression. Individuals with SAD often exhibit significant lethargy, sleeping more than normal, and increased appetite (including cravings for complex carbohydrates and sugars; Kasper et al., 1989).

Within the recurrent depressed population, 10-20% of all cases follow a seasonal onset pattern (Magnusson, 2000). Several longitudinal studies have supported the observation that SAD episodes recur in a predictable pattern (Graw, Gisin, & Wirz-Justice, 1997; Sakamoto et al., 1995). Demographic risk factors for SAD include living at higher latitudes (Rosen et al., 1990), being young (mean age of onset is about 27 years; Rosenthal et al., 1984), and being female (Kasper et al., 1989; Rohan & Sigmon, 2000;

Rosen et al., 1990). Regarding the gender difference, women comprise 60 to 90% of

SAD cases (Rohan & Sigmon, 2000; Rosen et al., 1990), which is at least equal to and

perhaps greater than, the gender difference in nonseasonal depression (U. S. Department

of Health and Human Services [USDHHS], 1993). Thus, it remains unclear whether

gender represents an independent risk factor for SAD above and beyond recurrent MDD

(Kasper et al., 1989).

Numerous biological hypotheses for SAD development have been proposed

including phase-delayed circadian rhythms, insufficient light entering the retina, an

abnormal response to increased melatonin production, and reduction of serotonergic

activity (Lee, Blashko, Janzen, Paterson, & Chan, 1997). Through these biological

mechanisms, SAD is hypothesized to result from decreased light availability (Lingjærde,

Bratlid, Hansen, & Grotestam, 1986; Rosen et al., 1990). In one study, Rosen et al.

(1990) showed that photoperiod (i.e., day length) is related to SAD prevalence such that

as latitude increases, prevalence rates also increase in the U.S.

To date, the "gold standard" of treatment for SAD symptoms involves direct

exposure to bright artificial light (i.e., light therapy), a treatment based on proposed

biological mechanisms. In addition to symptom improvements among individuals with

SAD, Kasper et al. (1989) demonstrated improvements in anergia and mood after 1-week

of light therapy in a subsyndromal SAD (S-SAD) sample. However, light treatment

results in a significant number of nonresponders (47%), with a clinically significant

response rate of only 43% in those experiencing moderate to severe SAD symptoms

(Terman et al., 1989). In addition, residual depressive symptoms are common with light

therapy (Postolache et al., 1998), and the majority of individuals using light therapy

(59%) discontinue because of the "ineffectiveness" and "inconvenience" of the treatment regimen (Schwartz, Brown, Wehr, & Rosenthal, 1996). Of those who continue long-term light therapy, estimates suggest that 38% of participants with "pure" SAD and 88% of participants with "complicated" SAD experience a "breakthrough" depressive episode, regardless of continued light use. Thus, there is an obvious need to find efficacious supplements or alternatives to light therapy given the high nonresponse rate, the persistence of residual symptoms, and the recurrent nature of SAD.

Some have proposed that psychological models of nonseasonal depression may have relevance to SAD. To address shortcomings of a purely biological model of SAD, Young (1999) proposed the dual vulnerability hypothesis in order to integrate the physiological and psychological mechanisms of SAD. This conceptualization is based on a study where individuals with SAD reported experiencing reverse vegetative symptoms (e.g., anergia, hypersomnia, and hyperphagia) prior to the onset of affective and cognitive symptoms (Young, Watel, Lahmeyer & Eastman, 1991). According to the dual vulnerability hypothesis, the high incidence of experiencing reverse vegetative symptoms in conjunction with seasonal changes, suggests an underlying physiologic vulnerability. Subsequently, in response to these core vegetative symptoms, affective or cognitive disturbances ensue, suggesting the activation of a psychologic vulnerability.

Preliminary Findings: Cognitive-Behavioral Correlates of SAD

1) <u>Beck's Cognitive Model of Depression</u>

In Beck's cognitive model of depression (1967; 1976), there are three levels of cognitive processes that define the main components of the model (See Appendix A). First, Beck (1967; 1976) describes the highest level (i.e., farthest from consciousness) of

cognitive processes as schemas. Schemas are silent attitudes or assumptions that guide our conscious thoughts. They are both global and stable, learned in early childhood, and represent the predominant beliefs one holds about the self, world, and future (Beck, 1967; Beck, Rush, Shaw & Emery, 1979). Schemas can be either positive or negative; however, it is the negativistic thought processes that tend to become activated under stressful circumstances and may serve to exacerbate or maintain depressive symptomatology (Beck et al., 1979). When schemas, or core beliefs, are activated, individuals tend to interpret events in their world, whether true or untrue, through the discolored lens of the negative core belief. Following activation of these negative cognitive schemas, a further cascade of unrealistic, negative thought processes commences. This second level of cognitive processing, somewhat closer to conscious awareness, is termed dysfunctional attitudes. Dysfunctional attitudes are higher level, maladaptive rules or assumptions that guide an individual's behavior and drive automatic thoughts, the third level of cognitive processing. Automatic thoughts are the most accessible, conscious cognitions. As with core schemas, automatic thoughts can be either negative or positive, however, in Beck's cognitive model of depression (1967; 1976) it is the negative automatic thoughts that are of primary concern. Essentially, automatic thoughts are spontaneous mental reactions to specific events and, if negative, can serve to drive a negative emotional state (Beck, 1967; 1976; See Figure 1).

Contrary to a vast cognitive-behavioral literature on nonseasonal depression, only a few preliminary studies have explored the applicability of cognitive-behavioral theories to SAD etiology, maintenance, and recurrence. In a comparison of individuals with SAD and individuals with nonseasonal depression, Hodges and Marks (1998) demonstrated

analogous negative, cognitive processes, including dysfunctional attitudes and negative automatic thoughts, in both depressed groups relative to a nondepressed control group. Levitan, Rector, and Bagby (1998) also found that SAD individuals, when compared with a group of nonseasonally depressed individuals, evidenced a negative attributional style; a tendency to make global and stable attributions to negative situations. Additionally, Rohan, Sigmon, and Dorhofer (2003) conducted a longitudinal comparison of women with a history of SAD and nondepressed female controls to determine whether cognitive-behavioral factors associated with nonseasonal depression (e.g., negative automatic thoughts and dysfunctional attitudes) also were present in SAD. Results indicated that women with a SAD history consistently experienced more negative automatic thoughts relative to controls, regardless of the season, with their highest level of negative automatic thoughts occurring in the winter. With respect to dysfunctional attitudes, the SAD history women did not differ from controls, but nonetheless, experienced greater levels of dysfunctional attitudes in the fall as compared to the summer (Rohan et al., 2003).

A different study compared nonseasonal, nondepressed female controls and a group of college women with subsyndromal SAD (S-SAD); characterized by the experiencing of mild to moderate reverse vegetative symptoms of depression (i.e., anergia, hypersomnia, and hyperphagia), coincident with the onset of the fall and/or winter seasons. Rohan, Sigmon, Dorhofer, and Boulard (in press) found that women with S-SAD demonstrated more automatic negative thoughts during the winter months than controls. In addition, these S-SAD women experienced more frequent negative automatic thoughts, even when their depressive symptoms had remitted, than controls.

Therefore, negative automatic thoughts in SAD and S-SAD appear to be somewhat "trait-like."

In nonseasonal depression samples, negative automatic thoughts and dysfunctional attitudes progressively worsen during a depressive episode, and tend to decrease with remission, implying a "state-like" characteristic (Hollon, Kendall, & Lumry, 1986; Persons & Miranda, 1992). Some researchers have contended that these negatively-biased information processing patterns are more likely symptoms of the depression itself rather than causal factors (Coyne & Gotlib, 1983; Hammen, Marks, deMayo & Mayol, 1985). Regardless of their onset versus maintenance etiologic significance, treatments that target maladaptive thinking styles may be appropriate for SAD.

2) Response Styles Theory

A cognitive theory of depression developed by Nolen-Hoeksema (1987) may help to explain the onset and maintenance of SAD. There are two basic response styles as described in Nolen-Hoeksema's (1987) model: rumination and distraction (See Appendix A). Rumination and distraction response styles are commonly assessed using the Response Styles Questionnaire (RSQ; Nolen-Hoeksema & Morrow, 1991), which differentiates between trait ruminative and distractive response styles. Rumination, or a repetitive hyper-focus on the basis for and consequences of depressive mood, contributes to exacerbation and/or increased duration of depressive symptoms, including experiencing prolonged depressed mood in a laboratory setting following a negative mood induction (Nolen-Hoeksema, Morrow, & Frederickson, 1993). This maladaptive response style represents a "trait-like" pattern, which also may increase an individual's chances of developing a full-blown MDE (Just & Alloy, 1997). Rumination among

dysphoric individuals also can contribute to negatively-biased self-referent information processing (i.e., negative automatic thoughts and dysfunctional attitudes) as hypothesized in Beck's cognitive model of depression (1967; 1976; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998). Alternatively, a distraction response style refers to an individual's reacting to a sad mood by engaging in distracting activities (i.e., activities that divert attention away from disturbed mood). Individuals who engage in a predominantly distractive response style appear to derive some degree of "protection" from intensified, prolonged depressed mood (Nolen-Hoeksema et al., 1993).

A few studies have extended response styles theory to SAD. Rohan et al. (2003) found that women with SAD generally ruminated (e.g., engaged in a hyper-focus on negative automatic thoughts) at a greater frequency than nondepressed controls, and that rumination frequency in the fall predicted the intensity of SAD-related symptoms during the subsequent winter above and beyond fall depressive symptoms. Consistently, Azam and Young (2001) demonstrated that ruminative response style predicted winter depression severity, after controlling for baseline depression levels. However, even when controlling for baseline depression, distracting response style did not predict winter depression severity. Based on these studies, excessive rumination may represent a cognitive vulnerability for SAD symptom onset, and treatments that interfere with ruminative behavior may be helpful for SAD.

3) Lewinsohn's Behavioral Model

Lewinsohn (1974) developed a behavioral model that later evolved into an integrated model of depression (Lewinsohn, Hoberman, Teri, & Hautzinger, 1985). Both may help explain SAD symptom onset, severity, and duration. Lewinsohn (1974)

hypothesized that depression is associated with a low rate of engaging in positively reinforcing or pleasant activities. The literature has shown that individuals who suffer from nonseasonal depression experience reductions in overall activity level and less gratification from activities (Wierzbicki & Rexford, 1989). Perhaps in winter, this is because there may be fewer positive reinforcers available (e.g., bright, sunny days; outdoor activities) for everyone (i.e. SAD, nonseasonal depressed, and normal controls). However, in SAD, individuals may be especially sensitive to the reduction of positive reinforcers and the concomitant increase in stimuli that may be perceived as aversive or unpleasant (e.g., dark, dreary days; winter weather).

Rohan et al. (2003) found that a group of women with a history of SAD engaged in fewer pleasant activities throughout the winter months when compared to nondepressed controls. Among SAD women, activity frequency was highest in summer, followed by fall, and lowest in winter. Women with a SAD history also reported greater enjoyment when participating in summer activities as compared to fall or winter activities. Nondepressed controls did not differ across the seasons in activity frequency or enjoyment. This overall pattern of waxing and waning of pleasant event frequency and enjoyment in SAD is consistent with research on nonseasonal depression. These maladaptive behavioral patterns may contribute to onset and/or maintenance of a SAD or depressive episode. These findings suggest that therapies that promote behavioral activation may be an effective treatment option for individuals with SAD.

Preliminary Findings: Cognitive-Behavioral Therapy for SAD

Considering the results of those studies performed by Rohan et al. (2003), Azam and Young (1998), and Hodges and Marks (1998), there is evidence that cognitive-behavioral

factors may play a significant role in development and/or maintenance of SAD. At the very least, cognitive-behavioral factors including negative automatic thoughts, dysfunctional attitudes, negative attributional style, rumination, and activity frequency and enjoyment appear to be correlates of both seasonal and nonseasonal depression. Because the main therapeutic components of cognitive-behavioral therapy (CBT) focus on reducing negative automatic thoughts and dysfunctional schemas, as well as increasing activity level and enjoyment, CBT also may represent a viable alternative or supplemental treatment option for SAD, especially for those individuals who are refractory to light therapy alone.

Several seminal studies have demonstrated that CBT is an effective treatment for nonseasonal depression when compared to various other treatment modalities. Dobson (1989), in the first meta-analytic study on CBT for depression, compared participants across 28 studies who had been randomly assigned to a wait list, no treatment, various psychotherapies, pharmacotherapy, behavior therapy, and CBT. The results revealed the greatest degree of change in depression severity for the cognitive-behavioral treatments. Specifically, on average, CBT participants had outcomes superior to 98% of no-treatment or wait-list controls, 67% of behavior therapy participants, 70% of pharmacotherapy participants, and 70% of other therapy participants. These results are unusual, given that meta-analytic findings and other quantitative reviews rarely suggest such compelling evidence for one specific treatment modality over others (e.g., Nathan, 1998).

A more recent meta-analysis that included only methodologically rigorous randomized clinical trials demonstrated that although there was no significant difference between CBT and more behavioral therapies, CBT was clearly superior to other

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psychotherapies, antidepressant therapy, and wait list conditions (Gloaguen, Cottraux, Cucherat, & Blackburn, 1998; Butler & Beck, 2001). Regarding the long-term benefits of treatment, 60% of individuals treated with pharmacotherapy relapsed at 1-year follow-up compared to only 29.5% of individuals treated with CBT. Another recent quantitative review article completed by Butler and Beck (2001) also found that CBT for depression was more effective than untreated, wait list, or placebo controls in reducing depression severity.

DeRubeis, Gelfand, Tang, and Simons (1999), in their meta-analysis of four randomized trials, compared pharmacotherapy and CBT for severely depressed outpatients. CBT and antidepressant therapies were compared both within and across the four studies. Statistically, the overall effect size when comparing CBT to medication showed a trend toward greater reductions in depressive symptoms as assessed by the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1967) and the Beck Depression Inventory (BDI; Beck, 1987) for CBT. However, when the two treatment modalities were directly compared in the meta-analysis, there were no statistically significant differences between CBT and medication. This result suggests that pharmacotherapy should not be considered superior to CBT when treating severely depressed outpatients. Collectively, these results support the clinical effectiveness of CBT for depression, including severe depression, and also demonstrate the significant treatment durability of CBT beyond the conclusion of treatment.

A pilot study conducted by Rohan, Tierney Lindsey, Roecklein, and Lacy (in press) compared group cognitive-behavioral therapy (CBT, $n = 7$), light therapy (LT, $n = 9$), and the combination of group cognitive-behavioral therapy and light (CBT+LT, $n = 7$) for

SAD in a 6-week randomized clinical trial. Throughout the treatment phase, CBT participants received 12 twice-weekly sessions of CBT in small groups of participants, using a manualized, SAD-tailored CBT protocol that promoted adaptive coping strategies for the winter season. For example, the "Coping with the Seasons" protocol included the behavioral activation and cognitive restructuring components typical of CBT, but added a role for environmental cues in the onset of symptoms and the maintenance of depressive behaviors. To increase prophylactic benefits, participants learned to identify symptoms early on and to implement a personalized relapse-prevention plan. LT was self-administered via a standard light box to participants in two 45-minute doses of 10,000 lux light, once in the morning (between 6:00 and 9:00 am) and once in the evening (between 6:00 and 9:00 pm), and CBT+LT participants received all elements of both CBT and LT protocols.

The Structured Interview Guide for the Hamilton Rating Scale for Depression – Seasonal Affective Disorder Version (SIGH-SAD; Williams, Link, Rosenthal, Amira, & Terman, 1992) and the Beck Depression Inventory – Second Edition (BDI-II; Beck et al., 1979) constituted the primary outcome measures to quantify change in SAD-specific and depressive symptoms, respectively. Results demonstrated statistically significant pre- to post-treatment symptom reductions in all three treatment groups on both the SIGH-SAD and the BDI-II with no significant differences between the treatments. To address clinical significance, remission rates for the three treatments also were compared at post-treatment based on pre-determined criteria established in previous SAD research (Terman et al.1989). Post-treatment remission rates using SIGH-SAD criteria were: CBT+LT (71.43%), LT (55.55%), and CBT (42.86%), although differences were not statistically

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different because of the small sample size. Post-treatment remission rates based on BDI-II criteria were: CBT (71.43%), CBT+LT (50.00%), and LT (33.33%). Again, because the sample size was small, results did not reach statistical significance. These preliminary results are promising for the potential clinical utility of CBT, alone or in combination with light, in treating an acute SAD episode.

Rohan, Tierney Lindsey et al. (in press) also conducted a 1-year naturalistic follow-up of the initial study sample during the subsequent winter. Twenty-one of the initial 23 participants returned for follow-up (7 CBT, 8 LT, and 6 CBT+LT). Results indicated that SIGH-SAD scores differed significantly across treatment groups 1-year after treatment completion. The effect size was medium and suggested that the CBT+LT group had lower SIGH-SAD scores than LT alone. When comparing BDI-II scores, CBT and CBT+LT both had lower BDI-II scores than LT participants at the 1-year follow-up.

When comparing SIGH-SAD relapse rates (i.e., the return of SAD symptoms severe enough to qualify for a full-blown recurrence) the CBT and CBT+LT groups (both 0%) had significantly less relapse than LT (62.50%). At the 1-year follow-up, remission rates based on SIGH-SAD criteria were: CBT+LT (83.33%), CBT (42.86%), and LT (37.50%). This large difference between relapse rates and remission rates is because those individuals in the CBT and CBT+LT groups sustained their treatment gains at 1-year follow-up, whereas LT participants did not. Using BDI-II criteria, remission rates were slightly different, but followed the same pattern: CBT+LT (66.67%), CBT (57.14%), and LT (25.00%). However, because of the small sample size, remission results were not statistically significant. These findings suggest treatment durability for CBT in SAD, leading to reduced relapse rates, higher remission rates, and decreased

symptom severity over subsequent years, which is consistent with the finding that CBT

for nonseasonal depression reduces relapse relative to medication or clinical management

(Blackburn, Eunson, & Bishop, 1986; Fava, Grandi, Zielezny, Rafanelli, & Canestrari,

1996; Fava, Rafanelli, Grandi, Conti, & Belluardo, 1998; Paykel et al., 1999).

In this preliminary SAD treatment study, in addition to examination of the primary

outcome measures of depression (i.e., SIGH-SAD, BDI-II), Rohan, Tierney Lindsey et al.

(in press) also measured numerous secondary constructs related to cognitive-behavioral

theories of depression. These authors also are incorporating these measures into their

larger, ongoing clinical trial for SAD. The self-report measures administered to each

treatment group at pre- and post-treatment included the Automatic Thoughts

Questionnaire (ATQ; Hollon & Kendall, 1980), Dysfunctional Attitudes Scale (DAS;

Weissman & Beck, 1978), Response Styles Questionnaire (RSQ; Nolen-Hoeksema &

Morrow, 1991), and Pleasant Events Schedule (PES; MacPhillamy & Lewinsohn, 1982).

These measures were administered to assess changes in these cognitive-behavioral

constructs (i.e., automatic thoughts, dysfunctional attitudes, rumination and distraction,

and pleasant event frequency and enjoyment) across the treatment phase.

The present study's primary goal was to examine the mechanisms of change, both

cognitively and behaviorally, from pre- to post-treatment using CBT, LT, and CBT+LT

to treat an acute SAD episode. To this end, we examined changes in participants'

negative automatic thoughts, dysfunctional attitudes, response styles, and pleasant event

frequency and enjoyment across treatment. This approach allowed determination of how

CBT may be working to improve SAD relative to light therapy. The nonseasonal

depression literature concerning these constructs is reviewed below to expand on the rationale for the current study and to formulate hypotheses.

Mechanisms of Change Across Treatment Modalities

1) <u>Negative Automatic Thoughts</u>

Prior studies have not examined changes in cognitive constructs across treatment for SAD. However, cognitive constructs have been examined in treatment studies for nonseasonal depression. Recently, Jacobson et al. (1996) conducted a dismantling study of Beck's cognitive therapy, using the ATQ as an outcome measure of automatic thoughts. Outpatients with Major Depression received either a behavioral activation component (BA; a series of behavioral tasks designed to activate individuals within their environment), a behavioral activation component with a modified automatic thoughts element (AT; a cognitive component involving restructuring automatic thoughts without schema modification), or Beck's complete cognitive-behavioral treatment (CBT; BA, AT, and schema modification). Individuals showed significant improvements in negative thinking from pre- to post-treatment on the ATQ regardless of whether they received complete CBT or a component therapy. The basic premise of Beck's cognitive theory is that individuals become depressed because of their deeply ingrained negative schemas and that schema modification is essential to alleviating depression and preventing relapse. However, contrary to Beck's model, the Jacobson et al. (1996) study suggests that it is not necessary to modify these core schemas in order for depression to improve.

Psychological and more biologically-based treatments for nonseasonal depression also have been compared using the ATQ as a measure of cognitive change over treatment. Oei and Yeoh (1999) compared individuals who received CBT without

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medication (CBT) and individuals treated with CBT and adjunct antidepressant therapy (CBT-M). Negative automatic thoughts declined significantly from pre- to post-treatment in both groups; however, the CBT and CBT-M groups did not differ significantly from each other. This study and Jacobson et al. (1996) suggest that reduced negative automatic thoughts are related to improved mood, regardless of the specific treatment modality used.

Additionally, Simons, Garfield, and Murphy (1984) compared individuals with moderate depression randomly assigned to CBT or pharmacotherapy. Results indicated significant reductions in automatic negative thoughts from pre- to post-treatment for both treatment groups with no difference between the treatments in degree of change. Therefore, the authors found that changes elicited by these two vastly different treatment modalities (i.e., psychological versus biological) based on radically different theoretical assumptions, resulted in nearly identical changes on a cognitive construct, automatic negative thoughts. However, for those individuals whose depression did not improve with either CBT or pharmacotherapy, automatic thoughts remained stable over treatment. These findings suggest that cognitive change may be a concomitant of depression improvement rather than a primary cause of improvement.

In another study, Bowers (1990) compared three treatment groups: cognitive therapy plus medication (CT&M), relaxation therapy plus medication (RT&M), and medication alone (nortriptyline; MA) in an inpatient psychiatric sample with depression. Each patient received 12 sessions of either CT or RT, 25-75mg of nortriptyline per day at the start of the study, and 100-200mg of the drug per day at the end of the study. The ATQ was completed at the 1st (pre-treatment), 6th (mid-treatment), and 12th (post-treatment)

sessions and at discharge from the hospital. Participants, in general, objectively reported an overall reduction in depressive symptoms, regardless of treatment group, as assessed by the HRSD and the BDI. Results also indicated that CT&M and RT&M showed significantly less automatic negative thoughts than MA at discharge. These findings suggest that automatic negative thoughts may decrease more with a directive psychotherapy and medication treatment combination than with medication alone, even if the negative thoughts are not targeted directly, as was the case in the RT&M group.

In a study conducted by Zettle and Rains (1989), individuals were compared both before and after 12 weeks of group therapy in which participants received one of three treatments. The first group received complete cognitive therapy (CCT; Hollon & Shaw, 1979), including Beck's full protocol and distancing (allowing participants to see their automatic negative thoughts as beliefs to be examined rather than facts), cognitive restructuring (identification and analysis of negative automatic thoughts to discern their relative truthfulness, followed by replacement with more accurate assessments of the situation being considered), and behavioral hypothesis testing (identification of thoughts that may be interfering with engagement in activities followed by assignment of activities to test those thoughts). The second treatment group received partial cognitive therapy (PCT), which incorporated cognitive restructuring and behavioral hypothesis testing, but eliminated distancing procedures. The third treatment group received comprehensive distancing (CD; Hayes, 1987), which was developed from a behavioral view of cognitive activity and included use of similes, reattribution techniques, and "alternative conceptualizations" as outlined by Beck et al. (1979).

Individuals in this study reported equal improvements in depressive symptoms as assessed by the BDI regardless of treatment group. However, none of the treatments demonstrated change on the ATQ from pre- to post-treatment. One possible reason for the discrepancy between this study and the rest of the literature could be because in a group format, alternative processes (e.g., increased social support, increased cohesion) may act concomitantly and interfere with specific therapeutic components and processes at the individual level. With respect to the CD, it may not be so surprising that negative automatic thoughts are unaffected across treatment, given that the main therapeutic component of CD was derived from a behavioral view of cognitive activity. In CD, focused attempts to alter depressive thinking patterns are believed to be unprofitable, and can elicit further depressive thoughts, similar to the effects of rumination (Hayes, 1987). Therefore, CD does not focus on cognitions. However, the finding of no change in ATQ with CCT or PCT stands in contrast to the rest of the literature.

Given the body of literature reviewed thus far, with the exception of the Zettle and Rains (1989) study, results predominantly indicate that automatic negative thoughts are significantly reduced from pre- to post- treatment, regardless of the treatment modality employed. Reductions in automatic negative thoughts were reported in a complete CBT condition (Jacobson et al., 1996; Simons et al., 1984), a behavioral activation condition (Jacobson et al., 1996), a modified automatic thoughts condition (Jacobson et al., 1996), CBT with medication (Oei & Yeoh, 1999), CBT without medication (Oei & Yeoh, 1999), medication alone (Simons et al., 1984; Bowers, 1990), a combined cognitive therapy and medication condition (Bowers, 1990), and a combined relaxation therapy and medication condition (Bowers, 1990).

One study suggested that the degree of change in automatic thoughts may be less when medication alone is used compared to medication combined with directive psychotherapy (Bowers, 1990). Alternatively, in a group treatment setting, a complete cognitive therapy condition and a partial cognitive therapy condition (where negative automatic thoughts were targeted directly) demonstrated no significant reductions in negative automatic thoughts from pre- to post-treatment (Zettle & Rains, 1989). There were also no differences in automatic thoughts following a comprehensive distancing condition where negative automatic thoughts were not directly targeted (Zettle & Rains, 1989). Overall, the literature is mixed, but generally suggests that negative automatic thoughts are reduced from pre- to post-treatment for individuals with nonseasonal depression regardless of whether there is a focus on automatic negative thoughts within the treatment protocol; however, the specific mechanisms responsible for such reductions are as yet unknown.

2) Dysfunctional Attitudes

The nonseasonal depression literature regarding dysfunctional attitudes appears to be fairly consistent. When comparing pre- to post-treatment Dysfunctional Attitude Scale (DAS) scores, numerous studies that have incorporated CBT treatment protocols (both with and without adjunct medication) as well as CBT components have found significant reductions in dysfunctional attitudes in both CBT and CBT plus medication treatments (Oei & Yeoh, 1999) and in the behavioral activation (BA), automatic thoughts challenging (AT), and complete cognitive therapy (CT) components of CBT (Jacobson et al., 1996). In addition, Jacobson et al. (1996) found that the non-cognitive component treatment of BA alone, the AT component treatment, and the more complete version of

cognitive therapy (CT), which focused on changing core schemas, produced comparable pre- to post-treatment changes in DAS scores. Zettle and Rains (1989) also found significant reductions in dysfunctional attitudes across treatment for complete cognitive therapy (CT) and partial cognitive therapy (PCT); however, pre- to post-treatment DAS differences were not found in the comprehensive distancing (CD) treatment condition. With respect to dysfunctional attitudes, Zettle and Rains' (1989) findings suggest that the incorporation of a behavioral component based on cognitive activity (i.e., comprehensive distancing) alone is not sufficient to elicit cognitive change closer to the schematic level. In general, these results suggest that it may not be necessary to focus specifically on dysfunctional attitudes in psychotherapy for depression in order to alter these maladaptive assumptions.

Some studies using more biologically-based treatments have also examined changes in dysfunctional attitudes over treatment. Peselow, Robins, Block, Barouche, and Fieve (1990) assessed groups of individuals treated with 3 to 6 weeks of medication (imipramine, fluoxetine, or clovoxamine) or placebo. These treated samples were compared to a group of normal controls (individuals with no lifetime history of affective disorder and no lifetime history of pharmacological treatment for psychiatric illness) that was not treated but was also assessed twice. Specifically, controls were assessed using the DAS before the other groups were treated and after a comparable time period following treatment completion (3 to 6 weeks). The depressed groups endorsed significantly more dysfunctional attitudes than the control group both before and after their active treatment. The DAS scores decreased from pre- to post-treatment for participants with depression who were "responders" to treatment receiving medication or

placebo. Controls' DAS scores also decreased over the treatment interval; however, the decrease in the depressed group was significantly greater than in controls. This may suggest that dysfunctional attitudes are "trait-like" and may decrease naturally over time and as a result of reduced depression.

In treating a group of depressed outpatients with "open-label" pharmacotherapy (fluoxetine), Fava, Bless, Otto, Pava, and Rosenbaum (1994) found significant reductions in DAS scores from pre- to post-treatment. Outcomes were also associated with depression severity, whereby depression and DAS scores decreased in a parallel fashion over treatment. The authors suggested that these results may support the notion that dysfunctional attitudes in depression are state dependent, and improve as depression remits. Considering the collective results of these studies, the literature suggests that individuals with nonseasonal depression treated with biological (e.g., pharmacotherapy) or psychological treatments (e.g., complete CBT, partial CBT, or component CBT therapies) report a reduction in dysfunctional attitudes over acute treatment.

3) Pleasant Events

According to the behavioral model (Lewinsohn, 1974), increased participation in pleasant events (i.e., positively reinforcing activities) reduces depressive symptom severity, whereas, participation in unpleasant events (i.e., non-reinforcing, aversive activities) increases depression. In an early test of this, Grosscup and Lewinsohn (1980) examined the relationship between depressed mood and aversive event frequency in a sample of depressed individuals at pre-treatment, post-treatment, and at 1-month follow-up on the Pleasant Events Schedule (PES). Treatment was a 6-week (twice-weekly) behavioral activation treatment protocol. The main therapeutic goal was to increase

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individuals' rate of engagement in pleasant activities through three interpersonal styles of interaction: assertion, interpersonal style of expressive behavior, and social activity level. The authors found a strong positive association between the occurrence of daily unpleasant events and depressed mood during treatment and at 1-month post-treatment. Further, when unpleasant event frequency was high, there was a concomitant decrease in enjoyment associated with pleasant events. Treatment also resulted in increased frequency and enjoyability of events, as assessed by the PES, as well as a significant increase in PES cross-product scores.

In comparing individuals treated with partial cognitive therapy (PCT), complete cognitive therapy (CT), and cognitive distancing (CD), Zettle and Rains (1989) found some differences between treatments on pleasant events. Although individuals in PCT reported a significant increase in overall participation and enjoyment of pleasant activities over the 12 weeks of treatment, they reported a reduction in total derived reinforcement from activities (as measured by PES cross-product scores) from post-treatment to 2-month follow-up. Individuals in the CT and CD conditions also reported improvements in overall enjoyment and participation in pleasant activities from pre- to post-treatment; however, unlike PCT, they demonstrated maintenance of these gains at the 2-month follow-up assessment. In addition, Jacobson et al. (1996) found that all three tested treatments (BA, AT, CT) were associated with increased frequency and enjoyability of pleasant events across the treatment phase. Counter to expectation, when examining cognitive and behavioral mechanisms and late changes in residual depressive symptoms, early increases in frequency of engaging in pleasant activities was associated with subsequent additional reductions in depressive symptoms in the CT condition, but

not in the BA condition as assessed by the PES (Jacobson et al., 1996). This result suggests that the combination of a cognitive component in conjunction with a behavioral component (i.e., CT) may have an early synergistic effect in further reductions of depressive symptoms.

In a comparison of different types of psychotherapy, Zeiss, Lewinsohn and Munoz (1979) compared interpersonal psychotherapy (IPT), CBT, and pleasant events scheduling in a group of depressed outpatients, half of whom received immediate treatment and half of whom received delayed treatment. Regarding pleasant events, PES cross-product scores improved across all three treatments, and at the second assessment, individuals who received immediate treatment were not superior to those who received delayed treatment. There were no significant differences across treatment modalities on PES outcomes. Collectively, these studies suggest that higher frequency of pleasant activities, as well as the degree of enjoyment associated with participation in activities, may serve to lessen depressive symptomatology and that pleasant event frequency and enjoyment improve over any type of successful treatment.

4) Rumination/Distraction

In contrast to the literature reviewed on automatic thoughts, dysfunctional attitudes, and pleasant events, there are no published empirical studies addressing changes in response styles (i.e., rumination and distraction) over depression treatment, in general, or across different treatment modalities, although rumination has been linked with Beck's cognitive model. Given the results of the relatively few empirical studies previously reviewed (Azam & Young, 1998; Rohan et al., 2003), rumination may lead to increased negative automatic thoughts and activation of dysfunctional attitudes in SAD.

Segal, Williams, and Teasdale (2002) proposed a model of depression recurrence that suggests some possible changes in response style over treatment. The model indicates that regardless of the fact that dysfunctional thinking patterns of depressed individuals appear on the surface to be restored to "normal" following remission of a depressive episode, the initial onset of depression causes a permanent maladaptive change in the world views of these individuals, rendering them vulnerable to future depressive episodes. The result is an exaggerated reaction to small mood shifts, including activation of significantly high levels of negative automatic thoughts and dysfunctional attitudes that set the stage for ruminative response patterns. Based on this model, if response style had been examined across depression treatments, individuals treated with CBT, which focuses directly on cognitive restructuring of these maladaptive thought patterns, may experience greater reductions in ruminative response styles and a greater increase in the use of distraction techniques relative to other treatments that do not directly target and interfere with negative thinking (e.g., pharmacotherapy, light therapy, etc.).

Therefore, CBT's antidepressant effects may be mediated by reductions in rumination and/or increases in distraction. Cognitive restructuring enables individuals with SAD to confront and challenge their negative, ruminative thoughts. Additionally, because the behavioral component of CBT encourages increased participation in pleasant events, this may provide distraction from depressed mood. Therefore, CBT may reduce rumination and increase distraction more than strictly biologically-based treatments for SAD, which do not target ruminative or distractive behavior.

Cognitive Constructs as Predictors of Treatment Response

In addition to studies examining pre- to post-treatment change, other research has examined whether initial levels of cognitive-behavioral factors are associated with subsequent treatment responsiveness. DeRubeis et al., (1990) assessed outpatients with Major Depression treated with either CBT or pharmacotherapy. Negative thinking was examined using both the ATQ and the DAS. Treatment duration was 16 weeks and measures were given at pre-treatment, mid-treatment, and post-treatment. Results indicated that decreases in scores on the DAS between pre- and mid-treatment predicted further decreases in scores from mid-treatment to post-treatment in the CBT group only; however, when examining the ATQ, changes in scores from pre- to mid-treatment did not predict further reductions in automatic thoughts from mid-treatment to post-treatment. This suggests that modifying dysfunctional schemas early in treatment is important to an individual's overall treatment response, but that modification of negative automatic thoughts may not be as crucial. The authors' findings support the notion that cognitive processes play an important mediational role in cognitive therapy for depression; however, it remains unknown whether this finding is equally applicable to SAD.

Sotsky et al. (1991) examined a group of depressed outpatients divided into low and high dysfunctional attitude groups (e.g., median split on total DAS score) who were randomized into four different treatment groups: interpersonal psychotherapy (IPT), CBT, imipramine with clinical management (CM), and placebo with CM. In this study, pre-treatment DAS scores differentially predicted treatment response regardless of treatment group. Low DAS participants were significantly more likely than high DAS participants to experience complete response (i.e., a stringent measure based on a

combination of Hamilton and BDI scores) and a lower level of depression severity at termination in only the CBT and imipramine treatments, relative to the other treatments. Low DAS individuals in the imipramine – CM condition experienced the lowest mean depression score. However, in the high DAS group, there were no significant differences in depression severity at termination between the active treatments (i.e., IPT, CBT, imipramine with CM) and the placebo – CM treatment. Therefore, having a lower pre-treatment DAS score, but not having a higher pre-treatment DAS score, differentially predicted depression improvement across treatment modalities. However, the reader should consider the conflicting results found in the Peselow et al. (1990) study indicating that individuals with higher initial DAS scores demonstrated poorer response to pharmacotherapy or placebo treatment than to normal controls. Peselow et al. (1990) suggested that individuals with highly maladaptive cognitive schemas may require adjunctive treatments such as CBT in order to successfully impact dysfunctional attitudes.

In another study, mildly to moderately depressed outpatients were given the DAS before being treated with CBT (Keller, 1983). Similar to Sotsky et al. (1991), participants were divided using a median split of pre-treatment scores on the DAS into a high initial DAS group (HIDAS) and a low initial DAS group (LODAS). Results indicated that regardless of baseline depression level, participants with higher pre-treatment DAS scores were less likely to experience improvements across CBT on depression severity, social adjustment, and hopelessness. In addition, the negative association between improvement with CBT and initial DAS score could not be explained by the higher pre-treatment depression scores among participants in the

HIDAS group. At treatment conclusion (4 weeks) and follow-up (8 weeks), individuals in the HIDAS group reported higher levels of depression than individuals in the LODAS group. Keller (1983), therefore, proposed that heightened pre-treatment dysfunctional attitudes may be an indicator of general psychopathology, rather than a specific marker of "cognitive" depression.

Summary

Several cognitive and behavioral correlates of SAD have been identified in recent work, including negative automatic thoughts, dysfunctional attitudes, pleasant event frequency and enjoyment, and rumination. These cognitive and behavioral constructs reviewed may contribute to SAD symptom onset, maintenance, and recurrence. Numerous studies have shown that CBT is an effective treatment for nonseasonal depression that is at least equally efficacious, and perhaps superior, to other treatment approaches. The effectiveness of CBT may occur because the main therapeutic components within the CBT protocol are focused on reducing negative automatic thoughts and dysfunctional schemas, and increasing participation in pleasurable activities.

A preliminary study (Rohan, Tierney Lindsey et al., in press) found that CBT may represent an efficacious alternative or adjunctive treatment option to light therapy for SAD that may be appropriate for the nearly half of individuals with SAD who are refractory to light alone. This feasibility study further demonstrated significant prophylactic benefits of CBT for SAD including reduced relapse rates, increased remission rates, and decreased symptom severity over the subsequent winter season. It is important to determine how CBT may be working in SAD and whether CBT's

mechanism(s) of change in SAD are the same or different from that of nonseasonal depression.

The literature regarding mechanisms of change over depression treatment is equivocal, but generally indicates that negative automatic thoughts tend to improve from pre- to post-treatment regardless of the treatment modality employed, and irrespective of whether a component of the treatment protocol focused on reducing those negative automatic thoughts. In nonseasonal depression, individuals treated with both biological and psychological treatments also reported a reduction in dysfunctional attitudes across treatment. Regarding pleasant events, studies suggest that pleasant event frequency and enjoyment improve over treatment regardless of the modality used. Although no studies have examined changes in rumination and distraction over depression treatment, available models suggest that CBT may produce reductions in rumination and simultaneous increases in distraction behaviors. By assessing these cognitive and behavioral constructs using the ATQ, DAS, PES, and RSQ, this study will be the first to examine potential mechanisms of therapeutic change in alleviating SAD across different treatment approaches (i.e., CBT, light therapy, and their combination). This study will effectively help to determine which treatment modalities may most effectively change those cognitive-behavioral constructs with demonstrated involvement in SAD.

Study Purpose

Given the empirical literature to date examining changes in cognitive-behavioral constructs across treatment for nonseasonal depression, there is a need for further research focusing on these factors in SAD. Although light therapy is currently the best available treatment for SAD and our novel CBT intervention has shown promise, no prior

SAD treatment study has examined psychologically-based mechanisms of change with treatment. Examination of constructs such as negative automatic thoughts, dysfunctional attitudes, engagement in and enjoyment of pleasant activities, and response styles may help to explicate the specific mechanisms of change between various treatment modalities in SAD. Pre- to post-treatment changes in these constructs will be examined using widely-accepted measures (i.e., ATQ, DAS, RSQ, and PES) using data from our ongoing clinical trial comparing different types of treatment for SAD (i.e., CBT, CBT+LT, and LT). This design will help to explain which treatments are most effective in changing cognitive and behavioral constructs in a SAD sample. Specifically, this study will reveal <u>how</u> the various treatments may be working to improve SAD symptoms. In addition to examining change in cognitive-behavioral factors over acute treatment, this research also will identify specific cognitive-behavioral constructs at treatment outset that are predictive of SAD symptom severity, relapse, and remission at post-treatment. This will address whether cognitive-behavioral factors are related to acute treatment outcome and treatment durability.

Similar to our efficacy study (Rohan, Tierney Lindsey et al., in press), the current study is considered a feasibility study, in that there was no control group included in the design. However, the LT group served as a "best available treatment" control condition for comparison with our new, tailored CBT protocol for SAD. This effort, therefore, is a pilot study conducted for the purposes of gathering preliminary data on the process of change across CBT, light therapy, and their combination for SAD.

Hypotheses

1) Hypothesis One: Automatic Thoughts

It is predicted that participants in all three treatment groups will report a significant reduction in negative automatic thoughts over the course of treatment. Further, it is hypothesized that individuals in the CBT and CBT+LT conditions will demonstrate greater reductions in automatic negative thoughts over treatment as compared to LT, given that a substantial portion of our CBT treatment focused specifically on identifying and reducing negative automatic thoughts, whereas light does not target automatic thoughts. It is also hypothesized that CBT and CBT+LT will not differ from each other in degree of change on automatic thoughts. This hypothesized pattern of findings would produce a significant Group X Occasion interaction.

Hypothesis one will be tested using a 3 (participant group; CBT, CBT+LT, LT) x 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on Automatic Thoughts Questionnaire (ATQ) scores. Again, a significant Group x Occasion interaction is predicted. If an interaction is revealed, tests of simple main effects for occasion within group and group within occasion will be performed. If hypothesis one is supported, the occasion main effects will be significant within each group (i.e., CBT, CBT+LT, and LT) and the group main effect will be significant at post-treatment only. To delineate the group effect at post-treatment, Tukey's post-hoc tests will be performed to compare each pair of treatments. Here, it is expected that CBT and CBT+LT will demonstrate lower post-treatment ATQ scores than LT.

2) Hypothesis Two: Dysfunctional Attitudes

Regarding dysfunctional attitudes, this study hypothesizes that participants will report significant reductions in these more global negative thought patterns across treatment in all three treatment groups. The CBT and CBT+LT groups will experience more significant reductions in dysfunctional attitudes over treatment than the LT group because a large component of our CBT protocol focused on identifying and modifying negative core beliefs, which, according to Beck's model, drive dysfunctional attitudes. In contrast, LT does not involve any cognitive restructuring.

Hypothesis two will be tested using a 3 (participant group; CBT, CBT+LT, LT) x 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on Dysfunctional Attitudes Scale (DAS) scores. As in hypothesis one, a significant Group x Occasion interaction is predicted. If an interaction is revealed, tests of simple main effects for occasion within group and group within occasion will be performed. If hypothesis two is supported, the occasion main effects will be significant within each group (i.e., CBT, CBT+LT, and LT) and the group main effects will be significant at post-treatment. Here it is expected that the CBT and CBT+LT groups will demonstrate lower DAS scores at post-treatment than LT.

3) Hypothesis Three: Pleasant Events

It is hypothesized that all treatment groups will improve on pleasant event frequency and enjoyment over treatment, but that the CBT and CBT+LT groups will report greater increases in both frequency and enjoyment in pleasant activities than those individuals in the LT only condition. This hypothesis is made because of the comprehensive focus on behavioral activation, including identification of and prescribed participation in pleasant

activities, throughout the 6-week SAD-tailored treatment protocol. LT, however, does not focus on pleasant events and may even hinder activity frequency due to its restrictive nature and required time. Given the direct focus on behavioral activation in CBT, the same pattern of results is predicted for pleasant events cross-product scores (i.e., degree of pleasure derived from completed activities). This expected pattern of findings would then produce a significant Group X Occasion interaction.

Hypothesis three will be tested using a 3 (participant group; CBT, CBT+LT, LT) x 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on Pleasant Events Scale (PES) frequency, enjoyment, and cross-product scores. A significant Group x Occasion interaction is predicted. If an interaction is revealed, tests of simple main effects for occasion within group and group within occasion will be performed. If hypothesis three is supported, there will be a Group X Occasion interaction, the occasion main effects will be significant within CBT, CBT+LT, and LT; and the group main effects will be significant at post-treatment. Here, it is expected that CBT and CBT+LT will demonstrate lower PES scores at post-treatment than LT.

4) <u>Hypothesis Four: Response Styles</u>

It is predicted that all three groups (i.e., CBT, CBT+LT, and LT) will experience changes in rumination (a decrease) and distraction (an increase) over treatment. However, individuals in the CBT and CBT+LT treatment groups will report greater reductions in ruminative responses and greater increases in distracting responses across treatment than their counterparts receiving LT only. This hypothesis is based on CBT's extensive focus on restructuring maladaptive cognitions. Negative automatic thoughts that arise during rumination are identified and challenged, leading to improved mood and

less likelihood of future rumination. As stated above, our CBT also involves a behavioral activation component, the practical application of distraction as formulated in response styles theory. This hypothesized pattern of findings would elicit a significant Group X Occasion interaction.

Hypothesis four will be tested using a 3 (participant group; CBT, CBT+LT, LT) x 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on Response Styles Questionnaire (RSQ) Rumination and Distraction subscale scores. A significant Group X Occasion interaction is predicted. If an interaction is found, tests of simple main effects for occasion within group and group within occasion will be performed. If hypothesis four is supported, in all three groups the occasion main effects will be significant and the group main effect will also be significant at post-treatment only. It is expected that CBT and CBT+LT groups will demonstrate lower RSQ – Rumination and higher RSQ – Distraction scores at post-treatment than LT.

For all ANOVAs described above, effect sizes will be reported as defined by Cohen (1977). This value will specify the relative size of the treatment effects for each group, and thus, will provide a quantitative estimate of power. Effect sizes are considered "small," "medium," or "large" with numerical values $\eta^2 = .01, .06$, and $.15$, respectively (Cohen, 1977).

5) <u>**Hypothesis Five: Depressive Symptoms and Remission Rates**</u>

It is hypothesized that for individuals in all treatment groups (e.g., CBT, LT and CBT+LT), initial level of dysfunctional attitudes will be negatively related to depressive severity at post-treatment. It is further hypothesized that pre-treatment dysfunctional

attitudes will be negatively associated with remission status at post-treatment, regardless of treatment group (e.g., CBT, LT, and CBT+LT).

To test the hypothesis that initial Dysfunctional Attitude Scale (DAS) scores will predict reductions in depressive symptoms across treatment, a block forced entry multiple regression analysis will be used to predict post-treatment BDI-II scores by entering pre-treatment BDI-II scores on the first block and pre-treatment DAS scores on the second block. The same procedure will be repeated to predict post-treatment SIGH-SAD scores by entering pre-treatment SIGH-SAD scores on the first block and pre-treatment DAS scores on the second block. In addition, logistic regression analysis will be used to determine whether pre-treatment levels of dysfunctional attitudes are associated with remission status (i.e., remitted or not remitted) on the BDI-II at post-treatment by entering pre-treatment BDI-II scores on the first block and pre-treatment DAS scores on the second block. The same procedure will be repeated to predict post-treatment SIGH-SAD remission status by entering pre-treatment SIGH-SAD scores on the first block and pre-treatment DAS scores on the second block.

Method

1) <u>Participant Recruitment</u>

Community residents were recruited throughout the greater Washington D.C. area via media advertisements. Individuals were selected for inclusion in the study based on meeting DSM-IV criteria for Major Depression, Recurrent, with Seasonal Pattern on the Structured Clinical Interview for DSM-IV Axis I Disorders - Clinician Version (SCID-CV; First, Spitzer, Gibbon, & Williams, 1995), and meeting criteria for a current SAD episode on the Structured Interview Guide for the Hamilton Rating Scale for Depression -

Seasonal Affective Disorder Version (SIGH-SAD; Williams et al., 1992). Participants

were <u>excluded</u> if they were already receiving psychiatric care (e.g., pharmacotherapy,

psychotherapy, light therapy) or if they intended to seek such treatment over the

following winter season, if they had any other Axis I disorder (including Bipolar SAD),

or if they were planning any extended absences from the D.C. metro area throughout the

winter. The study included a small sample of individuals who were taking stable doses of

antidepressant medications, but who otherwise satisfied all study criteria.

The first screening step consisted of a phone interview of potential volunteers who

responded to media advertisements to determine whether or not they met inclusion

criteria. Respondents who met phone criteria reviewed the informed consent document

in our laboratory. If they consented, individuals were then interviewed with the SCID-

CV (First et al., 1995). In the case where individuals were given a primary diagnosis of

SAD, monitoring began on a bi-weekly basis utilizing the SIGH-SAD to determine

when/if a current depressive episode began. At the time an individual's symptoms met

criteria for a current SAD episode, he or she was formally enrolled in the study. This

research was approved by the Uniformed Services University of the Health Sciences

Institutional Review Board.

2) <u>Measures</u>

Automatic Thoughts Questionnaire (ATQ). The ATQ (Hollon & Kendall, 1980;

See Appendix B), a subjective state measure of the frequency of negative self-statements

common in depression, is comprised of 30 items. The participants' ratings are given on a

5-point Likert scale (i.e., 1 = "not at all," 2 = "sometimes," 3 = "moderately often," 4 =

"often," and 5 = "all the time") indicating how frequently, if at all, the respective thought

occurred to them over the last week. The ATQ is highly reliable when administered to a clinically depressed population, with a coefficient alpha of .94 and high split-half reliability ($r = .91$). The ATQ also has demonstrated good reliability and validity (Hollon & Kendall, 1980; Harrell & Ryon, 1983). Items on the measure include ratings of the frequency of thoughts like "I feel like I'm up against the world" and "I hate myself."

Dysfunctional Attitudes Scale (DAS). The DAS (Weissman & Beck, 1978; See Appendix C) is a measure of deep-seated, enduring beliefs commonly found in depressed populations. The measure has 40 items including, "I am nothing if a person I love doesn't love me" and "If you cannot do something well, there is little point in doing it at all." Participants' ratings are given on a 7-point Likert scale indicating how much they agree with each statement (i.e., 7 = "totally agree," 6 = "agree very much," 5 = "agree slightly," 4 = "neutral," 3 = "disagree slightly," 2 = "disagree very much," and 1 = "totally disagree"). The DAS is valid, reliable, and highly internally consistent with good test-retest reliability (Dobson & Breiter, 1983; Weissman & Beck, 1978; Nelson, Stern, & Cicchetti, 1992).

Pleasant Events Schedule (PES). The PES (MacPhillamy & Lewinsohn, 1982; See Appendix D) is widely used in support of the behavioral model of depression and has shown good reliability and validity (MacPhillamy & Lewinsohn, 1982; Grosscup & Lewinsohn, 1980). The measure is a 320-item self-report assessment of potentially pleasurable activities, where each item is rated twice. The first rating corresponds to frequency of the activity within the past 30-days on a 3-point scale (i.e., 0 = "not happened" and 2 = "happened often" [at least 7 times]), and the second rating corresponds to the enjoyability of each activity on a 3-point scale. Three overall scores

result from the assessment tool. These include mean pleasant event frequency, mean event enjoyability, and mean cross-product scores.

Response Styles Questionnaire (RSQ).   The RSQ (Nolen-Hoeksema & Morrow, 1991; See Appendix E) measures trait ruminative versus distracting response styles. The test is a 32-item measure with items that are designed to assess how often a person does or thinks something when they are feeling down or depressed including items such as "Think about how sad you feel" and "Go to a favorite place to get your mind off your feelings." Participants' ratings are made on a 4-point Likert scale with ratings of 0 = "almost never," 1 = "sometimes," 2 = "often," and 3 = "almost always." The measure's Rumination and Distraction subscales have high levels of internal consistency (Nolen-Hoeksema & Morrow, 1991) and are computed as follows: the Rumination subscale score is represented by the sum of all rumination items/21 (the number of rumination items) and the Distraction subscale score is represented by the sum of all distraction items/11 (the number of distraction items).

Beck Depression Inventory – Second Edition (BDI-II). The BDI-II (Beck, Steer, & Brown, 1996) is a widely-used self-report measure assessing severity of depressive symptoms and has 21-items. The BDI-II has a 1-week test-retest reliability of .93 in an outpatient sample and is highly correlated (r = .93) with the original BDI (Beck et al., 1979). The BDI-II also has high convergent validity with other measures of depressive symptomatology (Beck, Steer, & Garbin, 1988). In addition, Gortner, Gollan, Dobson, and Jacobson (1998) have used the BDI-II as an estimate of remission rates following treatment for depression. Therefore, based on the criteria adopted by Gortner et al. (1998), in this study, the remission status on the BDI-II is defined as BDI-II score < 9.

Structured Interview Guide for the Hamilton Rating Scale for Depression (SIGH-

SAD). The SIGH-SAD (Williams et al., 1992; See Appendix F) is comprised of the 21-

item Structured Interview Guide for the Hamilton Rating Scale for Depression (HAM-D)

and the supplementary 8-item SAD subscale that assesses atypical or reverse vegetative

symptoms most commonly found in seasonal depression (i.e., anergia, hypersomnia, and

hyperphagia). The SIGH-SAD is the most common clinical measure used to assess

changes in depressive symptomatology in SAD treatment outcome research. Two raters,

blind to treatment conditions, showed high inter-rater reliability when administering the

SIGH-SAD to this SAD sample (rs = .93 at pre-treatment, .99 at post-treatment, and .99

at 1-year naturalistic follow-up). Terman et al. (1989) defined criteria for SAD episode

onset and relapse as: total SIGH-SAD score $\geq$ 20 + HAM-D score $\geq$ 10 + atypical score $\geq$

5. Remission status on the SIGH-SAD is defined in one of two ways: 1) pre- to post-

treatment reduction in total SIGH-SAD score $\geq$ 50% + HAM-D score $\leq$ 7 + atypical score

$\leq$ 7; or 2) HAM-D score $\leq$ 2 + atypical score $\leq$ 10.

3) <u>Procedure</u>

Once SIGH-SAD criteria for a current SAD episode were reached, participants

completed a pre-treatment assessment session where they completed the ATQ, DAS,

PES, and RSQ. At the conclusion of that visit, participants were randomly assigned to

either light therapy (LT), cognitive-behavioral therapy (CBT), or a combination therapy

of CBT+LT. In the present study, individuals began treatment anywhere from 3-days to

2-weeks following assignment to CBT or CBT+LT treatment. This short delay was

necessary given the time required for enough individuals to meet criteria to establish a

small group. In addition, many participants' had previous holiday obligations; therefore,

it was not uncommon for a treatment group to commence after the New Year. The post-

treatment assessment occurred following treatment completion and involved re-

administration of the same questionnaire battery.

4) <u>Treatments</u>

Cognitive-Behavioral Therapy (CBT). CBT was condensed from the standard 16-

20 session format into a 6-week intensified treatment protocol due to innate constraints of

the winter season (e.g., lasting only 3 months), and the inevitable spontaneous remission

of SAD with the arrival of spring. The treatment was delivered in a group format with

four to six participants for 1 ½-hour sessions, semi-weekly over 6 weeks. The CBT for

depression approach was tailored to SAD, including a rationale that acknowledged the

importance of environmental changes in symptom onset/maintenance and worked to

modify their cognitive and behavioral reactions to these environmental stimuli. Using

cognitive restructuring and behavioral activation techniques, treatment was focused on

improved coping with the winter season, in general and all of its environmental

challenges - reduced availability of natural sunlight, short photoperiods, and inclement

weather patterns.

Light Therapy (LT). LT participants used an artificial light box emitting 10,000 lux

(Sunbox Company, Gaithersburg, MD) twice a day over 6 weeks. At home, participants

self-administered light for 45 minutes, anytime during the 3-hour period between 6:00

and 9:00 am and again for any 45-minute interval between 6:00 and 9:00 pm. To ensure

comparable treatment duration across the treatments tested, individuals maintained a

schedule of twice daily light exposure for 6 weeks, versus the established 2-week dosing

regimen sufficient for therapeutic response (Labatte, Lafer, Thibault, Rosenbaum, & Sachs, 1995).

Cognitive-Behavioral Therapy and Light Therapy (CBT+LT). Participants in the CBT+LT treatment were given every rudiment of the CBT protocol, in addition to light therapy dosing as outlined above.

Results

1) Participant Characteristics

Participants included in these analyses (*n*=35) met DSM-IV criteria for Major Depression, Recurrent, with Seasonal Pattern, met criteria for a current SAD episode on the Structured Interview Guide for the Hamilton Rating Scale for Depression - Seasonal Affective Disorder Version (SIGH-SAD), and completed the 6-week treatment phase and pre- and post-treatment assessments. Data from the winters of 2000 – 2001 and 2001 – 2002 were included. Participant breakdown by treatment group was as follows: CBT (*n* = 12), LT (*n* = 11), and CBT+LT (*n* = 12). Individuals excluded from the analysis included those who were never enrolled in the study (i.e., those who never had a SAD episode, *n* = 3), those who did not complete the study (*n* = 6), and those who were randomly assigned to a control group (*n* = 8). Minimal contact delayed-treatment (MCDT) control participants were not included in the overall analysis because this control group was added to the treatment study during the second year of the clinical trial, and the cell size for this group was relatively small (*n* = 8). On average, participants were primarily middle aged (*M* = 47.9 years, *SD* = 12.0), female (91.4%), Caucasian (85.7%), married (54.3%), employed (80.1%), and college educated (77.1%).

2) Hypothesis One: Automatic Thoughts

For all of the following hypotheses, Wilks' Lambda will be reported as it is the standard statistic used in the clinical psychology research literature. In addition, for practical purposes, in the case of either a single sample or two independent samples and multiple corresponding dependent variables, Wilks' Lambda is the same as Hotelling's T^2. Wilks' Lambda also is identical to the F statistic in a standard ANOVA when there is one dependent variable. In either case, the transformed distributions are the precise statistical equivalent as a standard F (Norušis, 1990).

Pre- and post-treatment scores for the three treatment groups on the dependent measures are shown in Table 1. A 3 (participant group; CBT, CBT+LT, LT) X 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on ATQ scores revealed no significant Group X Occasion interaction, Wilks' Lambda F (2, 30) = 1.067, p = .357, eta² = .066. Because the Group X Occasion interaction was nonsignificant, we examined the overall significant occasion main effect, Wilks' Lambda F (1, 30) = 36.83, p < .001, eta² = .551. Participants in all three treatment groups (i.e., CBT, CBT+LT, LT) reported reduced automatic negative thoughts from pre- to post-treatment. On the ATQ, there was no significant main effect for group, indicating that on total ATQ scores, CBT, CBT+LT and LT were not statistically different from each other when collapsing across occasion, F (2, 30) = 1.549, p = .229, eta² = .094. One participant in the study did not complete the baseline ATQ and one participant did not complete the post-treatment ATQ; therefore, they were not included in this analysis.

3) **Hypothesis Two: Dysfunctional Attitudes**

A 3 (participant group: CBT, CBT+LT, LT) X 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on total DAS scores revealed no significant Group X Occasion interaction, Wilks' Lambda $F(2, 30) = .239$, $p = .789$, eta² $= .016$. Because the Group X Occasion interaction was nonsignificant, we examined the overall significant occasion main effect, Wilks' Lambda $F(1, 30) = 8.97$, $p = .005$, eta² $= .230$. Regardless of treatment group assignment (i.e., CBT, CBT+LT, LT), dysfunctional attitudes were reduced from pre- to post-treatment. On the DAS, there was no significant main effect for group, indicating that on total DAS scores, CBT, CBT+LT, and LT were not statistically different from each other when collapsing across occasion, $F(2, 30) = .852$, $p = .436$, eta² $= .054$. The two participants who did not complete the DAS at the post-treatment assessment were not included in this analysis.

4) **Hypothesis Three: Pleasant Events**

A 3 (participant group; CBT, CBT+LT, LT) X 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on PES frequency, enjoyment, and cross-product scores revealed no significant Group X Occasion interactions: for frequency, Wilks' Lambda $F(2, 30) = .251$, $p = .779$, eta² $= .086$; for enjoyment, Wilks' Lambda $F(2, 30) = 1.44$, $p = .253$, eta² $= .087$; and for cross-products, $F(2, 30) = .615$, $p = .547$, eta² $= .039$. The occasion main effects were also *ns* for frequency, Wilks' Lambda $F(1, 30) = .064$, $p = .80$, eta² $= .002$; for enjoyment, Wilks' Lambda $F(1, 30) = 2.58$, $p = .119$, eta² $= .079$; and for cross-products, Wilks' Lambda $F(1, 30) = 1.64$, $p = .210$, eta² $= .052$. Thus, there were no significant increases in frequency or enjoyment of

activities from pre- to post-treatment in any of the three treatment groups (CBT, CBT+LT, or LT).

On the PES, there were also no significant main effects for group, for frequency, Wilks' Lambda F (2, 30) = 1.96, p = .159, eta² = .115; for enjoyment, Wilks' Lambda F (2, 30) = .725, p = .493, eta² = .046; or for cross-products, Wilks' Lambda F (2, 30) = 1.526, p = .234, eta² = .092. This indicates that on PES enjoyment, frequency and cross-products; CBT, CBT+LT, and LT were not statistically different from each other when collapsing across occasion. Two participants in the study did not complete the post-treatment PES; therefore, their data was not included in this analysis.

5) **Hypothesis Four: Response Styles**

A 3 (participant group: CBT, CBT+LT, LT) X 2 (measurement occasion; pre-treatment, post-treatment) repeated measures ANOVA on the RSQ Rumination and Distraction subscale scores revealed no significant Group X Occasion interactions: rumination Wilks' Lambda F (2, 29) = .807, p = .456, eta² = .053; and distraction Wilks' Lambda F (2, 29) = .833, p = .445, eta² = .054. The overall occasion main effects were *ns* for rumination, Wilks' Lambda F (1, 29) = 3.91, p = .058, eta² = .119, and distraction, Wilks' Lambda F (1, 29) = .045, p = .834, eta² = .002. The effect size for the occasion main effect on rumination is medium (.119), however, indicating a trend toward significance. On the RSQ, regardless of assignment to treatment group (i.e., CBT, CBT+LT, LT), rumination scores showed a trend towards reducing from pre- to post-treatment. In addition, the RSQ showed no significant main effect for group, indicating that the CBT, CBT+LT, and LT groups were not statistically different from each other when collapsing across occasion for the response styles subscales of either rumination, F

(2, 29) = .640, *p* = .535, eta² = .042, or distraction, *F* (2, 29) = .143, *p* = .867, eta² = .010.

One participant in the study did not complete the RSQ at the pre-treatment assessment, and two participants did not complete the RSQ at post-treatment and their data were not included in the analysis.

6) Hypothesis Five: Depressive Symptoms and Remission Rates

Block forced entry multiple regression analysis to predict post-treatment BDI-II scores by entering pre-treatment BDI-II scores on the first block and pre-treatment DAS scores on the second block revealed that the DAS was not a significant predictor of post-treatment depressive symptom severity as measured by the BDI-II (Table 2). Overall, the model accounted for 1.5% of the variance in post-treatment BDI-II scores. The same procedure was repeated to predict post-treatment SIGH-SAD scores by entering pre-treatment SIGH-SAD scores on the first block and pre-treatment DAS scores on the second block. Results revealed that the DAS was not a significant predictor of post-treatment depressive symptom severity on the SIGH-SAD (Table 3). The model accounted for 1.0% of the variance in post-treatment SIGH-SAD scores.

In addition, a logistic regression analysis to determine whether pre-treatment DAS scores are associated with remission status on the BDI-II at post-treatment was performed by entering pre-treatment BDI-II scores on the first block and pre-treatment DAS scores on the second block. Results were nonsignificant (Table 4). The same procedure, repeated to predict whether pre-treatment DAS scores are associated with remission status on the SIGH-SAD at post-treatment by entering pre-treatment SIGH-SAD scores on the first block and pre-treatment DAS scores on the second also yielded nonsignificant results (Table 5).

DISCUSSION

The primary purpose of this study was to determine the cognitive-behavioral mechanisms of change across different treatment modalities for SAD. Previous work has examined both biological and psychological treatments in nonseasonal depression and their possible mechanisms of change; however, these mechanisms have not been examined across treatments for SAD. The present study included a biological treatment (i.e., LT), a psychological treatment (i.e., CBT), and a combination of biological and psychological treatments (i.e., CBT+LT). The primary results of this study suggest that both biological and psychological treatments for depression appear to have nonspecific effects on cognitive-behavioral mechanisms of change (i.e., negative automatic thoughts, dysfunctional attitudes, and rumination) across treatment modalities in SAD.

Regarding cognitive constructs relevant to Beck's cognitive model (1967; 1976), results from the current study are consistent with the majority of the nonseasonal depression literature. Although it was hypothesized that there would be greater improvement in maladaptive thinking patterns in the CBT and CBT+LT treatments that directly targeted negative thinking, negative automatic thoughts and dysfunctional attitudes improved comparably across all three treatment modalities. Light alone, which does not target cognitions, impacted automatic thoughts and dysfunctional attitudes comparably to the CBT groups. In general, studies have found improvements in automatic thoughts and dysfunctional attitudes across treatments for nonseasonal depression, including CBT, other psychotherapies, and pharmacotherapy (e.g., Jacobson et al., 1996; Simons, Garfield & Murphy, 1984; Fava et al., 1994).

Taken together, findings from the nonseasonal depression literature and those of the present study, suggest that maladaptive thinking patterns (e.g., negative automatic thoughts, dysfunctional attitudes) may improve as depression improves. As long as an individual is receiving an "active" treatment that successfully improves his or her seasonal or nonseasonal depression, these negative cognitions appear to improve as well. Thus, in contrast to Beck's model (1967; 1976), negative automatic thoughts and dysfunctional attitudes may be a concomitant or "symptom" of the depression, rather than a direct contributor to the depression that must be targeted for depression to alleviate. This hypothesis has been advanced in the nonseasonal depression literature regarding cognitive-behavioral mechanisms of treatment change (e.g., Oei & Yeoh, 1999; Bowers, 1990; Peselow et al., 1990). Treatments that directly target these maladaptive thought processes such as CBT may not have a greater impact on automatic thoughts and dysfunctional attitudes than biological or psychological treatments that do not directly target negative cognitions because all active treatments target depression, and any concomitants of depression would wane as depression improves.

Counter to the hypothesis that individuals receiving CBT and CBT+LT would demonstrate greater increases in both frequency and enjoyment of pleasant activities as compared to individuals receiving LT only because CBT directly targets activity level, there were no significant improvements on frequency, enjoyment, or mean derived reinforcement from pre- to post-treatment in any of the three active treatments. This result is inconsistent with review of results presented earlier from the nonseasonal depression literature. The review presented earlier concluded that pleasant event

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frequency and enjoyment improve over any successful treatment for depression (e.g., Jacobson et al., 1996; Zeiss et al., 1979).

There are several reasons for the discrepancy between past pleasant events results and the present study. First, our SAD-tailored CBT treatment was intense and required a high degree of participant commitment. In contrast to the typical CBT for depression protocol of 12-20 weekly sessions, our CBT was compressed into 12 twice-weekly 1½-hour group therapy sessions due to our seasonal constraints. In addition, CBT required completion of "homework" on a daily basis in order to practice the cognitive and behavioral skills learned in group. These assignments included development and execution of a pleasant activities plan, completion of thought diaries, core beliefs worksheets, and personal goal planning sheets.

Even more time-consuming is the CBT+LT combination treatment. This group is required to not only adhere to the stringent treatment protocol for CBT, but also to the highly time-consuming and restrictive LT therapy protocol. Participants used a light box in 45-minute doses twice daily. Given that the individual must position themselves within 18 inches from the light box for the proper dose of light to enter the retina, only a few limited activities are possible. In today's fast-paced and competitive work environment, with domestic and family commitments compounded by significant commuting time to work in the greater Washington D.C. area, participants may have had important competing priorities inhibiting their ability to engage in more frequent pleasant activities, or to derive enjoyment from them. The majority of our participants was employed with a family. Therefore, it may not be surprising that individuals in CBT and CBT+LT, as well as LT only, failed to significantly improve over the trial on frequency,

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enjoyment, and derived reinforcement from pleasant activities as measured by the Pleasant Events Schedule (PES).

The Response Styles Questionnaire (RSQ) is based on Nolen-Hoeksema's (1987) response styles theory, a cognitive theory of depression. Conceptually, the RSQ and PES appear to go hand-in-hand as measures of mechanisms of change across treatment. Indeed, a distracting response style (i.e., a conscious effort to divert one's attention away from a sad mood), often involves engaging in positively reinforcing activities. In contrast to distraction, rumination is a maladaptive response style, which involves dwelling on the reasons for, and possible outcomes of, depression. The hypothesis examined here was that all active treatments would result in decreased rumination and increased distraction behaviors across treatment. It was further hypothesized that CBT and CBT+LT would demonstrate greater reductions in rumination and increases in distraction as compared to the LT only condition because CBT encourages pleasant activities and challenges negative ruminative thoughts. Although there were no statistically significant differences between CBT, CBT+LT, or LT, there was a trend toward reductions in ruminative response styles in all treatment groups.

Given that this is the first study to ever examine changes in response styles across any depression treatment, this finding cannot be compared with prior results. Results of this study appear to indicate that engagement in distraction behaviors does not improve from pre- to post-treatment, which is consistent with the null results for the PES. However, based on the trend toward reductions in rumination over treatment, it is possible that with increased sample size and sufficient power, rumination may significantly reduce across treatment in future studies. Similar to automatic thoughts and

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dysfunctional attitudes, rumination findings also beg the question of whether or not an individual's response style is a direct contributor to depressive symptomatology or a concomitant of depression.

The collective results of this preliminary study are, as yet, equivocal. It is unclear whether the cognitive and behavioral constructs of negative automatic thoughts, dysfunctional attitudes, response styles, and frequency, engagement, and derived reinforcement from pleasant activities act as mechanisms of change across various biological and psychological treatment modalities for SAD. A possible explanation for the nonspecific effects of CBT, CBT+LT, and LT on cognitive and behavioral mechanisms of change across various treatment modalities may be based on the "interrelated constellation" hypothesis (Coyne, 1980). The main assumption of this hypothesis is that all psychological and physiological processes are interrelated, and access can be gained into this loosely-fused constellation in any number of ways.

Regardless of the treatment point of entry (e.g., pharmacotherapy, cognitive therapy, or behavioral therapy), the entire complex set of emotions, cognitions, and behaviors are unraveled and reorganized, which simultaneously influences other processes because of their interrelated nature. In other words, positively affecting any one part of the whole system changes the entire system of psychological and physiological processes, regardless of the therapy modality or the point of entry. If true, and if the model applies to SAD, then it is not surprising that significant differences were not revealed between our treatment groups on negative automatic thoughts, dysfunctional attitudes, response styles, and frequency, enjoyment and derived reinforcement of pleasant activities as mechanisms of change in SAD treatment.

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Similar to the interrelated constellation hypothesis, CBT hypothetically impacts both cognitions and behaviors comprising the psychological vulnerability (see Figure 2). For example, focusing on changing negative core schemas and reducing rumination may reduce one's overall cognitive vulnerability, whereas, focusing on an individual's activity withdrawal or psychosocial reactivity may reduce the behavioral vulnerability. As CBT impacts these components of the psychological vulnerability in a positive way, there may be a resultant "domino effect" and the physiological vulnerability also may be positively affected.

Alternatively, LT therapy presumably affects the physiological vulnerability to SAD including shifting of circadian rhythms, and increasing the number of photons entering the retina (Rohan, 2002). This reduction in physiological vulnerability may, therefore, result in a positive impact on the psychological vulnerability. The combination of CBT+LT works on both the biological and psychological vulnerabilities and may have a resultant positive effect on both psychological and physiological vulnerability domains. The model further posits that the psychological and physiological vulnerabilities interact with each other.

If this model is accurate, then similar to the interrelated constellation hypothesis, Rohan's (2002) integrative, cognitive-behavioral model represents another model in which the specific point of entry for intervention would not matter. That is, any positive gains would have a "watershed" effect impacting other areas within the SAD system. Specifically, applying CBT to SAD may initially affect the psychological vulnerability, but also indirectly impact the physiological vulnerability. For example, challenging and

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replacing negative automatic thoughts may alleviate depressed mood and lead to biological changes (e.g., phase-shifting of circadian rhythms, increased serotonin).

Conversely, even if LT directly targets the physiologic vulnerability to SAD, it also may positively affect the psychological vulnerability. As one example, LT may shift circadian rhythms, which may contribute to regulation of sleep and improved energy that could lead to reduced maladaptive thinking patterns or increased behavioral activation. This explanation is consistent with the findings of this preliminary investigation and may help to explain the nonspecific effects of our various treatment modalities on negative automatic thoughts and dysfunctional attitudes in SAD. Further, various biological and psychological treatments would not be expected to produce significant differences among groups from pre- to post-treatment on these cognitive and behavioral constructs given that they are all active, effective treatments and allow a point of access to this interactive system.

These cognitive and behavioral constructs may be correlates or symptoms of depression. Yet, it remains possible that these specific constructs are direct contributors to development of depression as outlined in Beck's cognitive model of depression, Lewinsohn's behavioral model, and Nolen-Hoeksema's response styles theory. In addition, it would be premature, based on this study's results alone, to conclude that these constructs are not acting as mechanisms of change across SAD treatment.

A plethora of studies in the nonseasonal depression literature demonstrated a relationship between initial levels of dysfunctional attitudes and treatment outcomes using both biological and psychological treatment modalities (e.g., pharmacotherapy, CBT). However, these results were not replicated in the present study. We hypothesized

that SAD participants' pre-treatment Dysfunctional Attitudes Scale (DAS) scores would be inversely related to their post-treatment depression symptom severity and remission status (i.e., remitted or not remitted). When using initial DAS scores to predict post-treatment depression symptom severity (with either the BDI-II or SIGH-SAD), no relationship was revealed. Further, pre-treatment DAS score was not significantly predictive of remission status on either the BDI-II or SIGH-SAD at treatment completion.

These nonsignificant results may indicate that dysfunctional attitudes as measured by the DAS are not as relevant to SAD as they are to nonseasonal depression. Dysfunctional attitudes, and consequently, core schemas may be different in SAD than in nonseasonal depression. Consistent with this assertion, Rohan et al. (2003) found no differences between a SAD and nondepressed sample across fall, winter, or summer on dysfunctional attitudes. Therefore, if the dysfunctional attitudes subscribed to by individuals with SAD are comparable to normal controls, this result provides further evidence that those dysfunctional attitudes experienced in SAD are qualitatively different than those experienced in nonseasonal depression. Perhaps the finding that initial DAS was unrelated to treatment response reflects an inadequate fit between SAD and the DAS.

Given that all of the measures included in this study (i.e., ATQ, DAS, RSQ, and PES) were developed for nonseasonal depression, one may ask whether or not it is appropriate to apply any of them to SAD. If cognitive-behavioral constructs as they apply to SAD are qualitatively different than those in nonseasonal depression, it would not be reasonable to expect that pre-treatment DAS scores would predict treatment response, whether assessing depressive symptom severity or remission status. As hypothesized by Rohan et al. (2003), it is possible that the core cognitions associated with

SAD are related to the environment (e.g., light availability, seasonal changes, and weather), which warrants a different approach to cognitive assessment, as well as cognitive-behavioral treatment for SAD than for nonseasonal depression. Although our CBT protocol incorporates cognitive restructuring of negative thoughts about the environment, our pre- and post-treatment assessment battery did not assess these hypothesized SAD-specific cognitions because such measures do not yet exist.

Any interpretations that can be drawn from this study are limited by the small sample size and resultant low statistical power. However, the unsupported hypotheses had very small effect sizes (e.g., eta² = .002), suggesting that even with an increased sample size, the expected differences among groups would be too small to be of clinical significance. Additionally, there was no control group included in the present study, although current research efforts in this laboratory are incorporating a minimal contact delayed-treatment control group (MCDT). This inclusion will allow us to rule-out other explanations (e.g., the passage of time, regression to the mean) for pre- to post-treatment changes on cognitive and behavioral factors. For example, one could argue that individuals considered remitted at post-treatment were remitted not because of any specific treatment modality per say, but spontaneously remitted because the winter season was nearing an end. However, we do not believe this to be the case because treatment was completed by the first week in March and the post-treatment assessments were all completed during March or earlier.

Another possible criticism is that CBT's effectiveness may be due to social processes (e.g., getting people together in a group). However, the pilot study results of Rohan, Tierney Lindsey et al. (in press) suggest otherwise. When SAD participants were

assessed at 1-year naturalistic follow-up, results indicated that individuals in both CBT and CBT+LT groups demonstrated a 0.0% relapse rate as compared to those individuals in the LT only condition, which demonstrated a 62.5% relapse rate. Consequently, this provides evidence of something unique about our SAD-tailored CBT treatment that directly impacts depressive symptomatology above and beyond nonspecific group processes during the acute treatment phase. Otherwise, one would not expect such dramatic differences in relapse rates at 1-year follow-up.

Another possible weakness of the present study is that the self-report measures utilized are face valid, and are, therefore, subject to response bias. This response bias could result in underreporting or overreporting of the cognitions and behaviors of interest based on whether treatment is commencing or whether treatment is concluded. Also, as mentioned previously, the measures used in this study may not be optimally tailored to SAD. Given that they were originally developed for nonseasonal depression, and the possibility that the mechanisms behind antidepressant response to treatment may be different in the case of SAD, it is essential that future research develop SAD-tailored measures. One further limitation is the external validity of these results. Our stringent inclusion criteria used in this study precluded admission of individuals with severe seasonality from participating such as individuals with comorbid Axis I diagnoses, receiving other treatment, or with suicidal intent.

There are numerous possibilities for future studies regarding cognitive-behavioral mediators of SAD treatment response. Future research efforts should incorporate measures at more frequent intervals across the span of the treatment phase. For example, cognitive and behavioral measures could be given on a weekly or bi-weekly basis during

treatment to detect any specific time points where significant gains are made with regard to these cognitive and behavioral constructs. Using more frequent assessments, one could also examine whether greater initial improvements in these constructs are predictive of a better overall treatment response or whether CBT, LT, or their combination demonstrate different rates or patterns of change.

Another direction to pursue is examination of negative automatic thoughts, dysfunctional attitudes, pleasant event frequency and enjoyment, and response styles at 1-year follow-up to determine if more distal gains are realized on these cognitive-behavioral constructs, as opposed to simply examining immediate benefits at post-treatment. During the winter subsequent to treatment completion, perhaps the treatment groups would differ on these measures. For example, in CBT, our participants are encouraged to prophylactically use the skills early in the fall to prevent SAD recurrence.

An important factor to examine in future studies of CBT in SAD may include an attempt to control for social contact and the social support provided by virtue of delivering therapy in a group format. Social comparison theory as espoused by Festinger (1954) may be hypothesized to have an effect on our group CBT participants. According to this theory, there exists an innate drive for human beings to evaluate their opinions and abilities, and groups fulfill these evaluative needs by providing a social reality. Individuals also are more likely to compare themselves with others who are more "like" themselves (i.e., others diagnosed with SAD). Therefore, individuals with SAD in a CBT group may be more likely to compare themselves to others within the group, essentially providing them with a "metric" of how others are responding to treatment. This could perhaps facilitate underreporting of depressive symptoms at post-treatment and

improvements on cognitive and behavioral measures, given participants' perceptions, real or imagined, that others are improving more relative to themselves.

In another landmark study of group processes, Deutsch and Gerard (1955) proposed that individuals want to become members of a group for informational and normative reasons. This concept could be directly applied to our SAD-tailored CBT treatment groups. The mere fact that individuals have ongoing contact with others in a similar plight may increase one's commitment to treatment and allow for an increased sense of belonging and identification with the group. Perhaps the nature of our CBT group increases participants' vulnerability to group influences, thus, directly affecting treatment outcomes.

Unfortunately, there is no simple design antidote for isolating the effects of CBT from the effects of group processes. "Inert," group-based "treatments" are generally considered unethical and potentially harmful in the field. Participants are essentially assigned to a treatment that is unlikely to alleviate their distress. Nonspecific group "therapy" controls control for getting participants together in a group, but do not control for numerous other important factors. Whereas, CBT is manualized and highly circumscribed, there is no manual for inert group therapy. Allegiance effects on the part of group therapists and low expectations for improvements on the part of participants randomized to these control groups also are problematic.

Future studies of cognitive-behavioral mechanisms of change in SAD could include experimental tasks to measure more implicit cognitions in addition to questionnaires that measure effortful cognitions. Development and incorporation of these measures may aid in determining cognitive mechanisms behind SAD treatment. One way to measure

cognitive processes experimentally is to use the Implicit Associations Test (IAT; Greenwald, McGhee, & Schwartz, 1998), which assesses automatic judgments outside of awareness. If individuals with SAD have implicit cognitions about light or other environmental cues, research may reveal significant differences across treatment through this less face-valid method of assessment. Our lab is currently using an IAT to measure implicit cognitive associations between light and positive valence and dark and negative valence. Future studies in our laboratory group will examine changes in the IAT over treatment and will determine whether our treatments differentially affect IAT responses. Given the relatively disproportionate amount of research that has been conducted on nonseasonal depression as compared to SAD, future research should also compare these two types of depression in order to tease apart differences in cognitive and behavioral mechanisms of change across both biological and psychological treatment modalities between these two manifestations of clinical depression.

In summary, although this preliminary study did not provide conclusive results concerning cognitive and behavioral mechanisms of change across various treatment modalities for SAD, the findings are consistent with the interrelated constellation hypothesis (Coyne, 1980) and Rohan's (2002) integrative model. The main findings were significant reductions from pre- to post-treatment on negative automatic thoughts and dysfunctional attitudes in all three treatment groups (i.e., CBT, CBT+LT, and LT). Whether these constructs represent "symptoms" of SAD that remit as depression subsides or whether they are direct contributors to the development of a SAD episode is still unknown. At the very least, these cognitive constructs appear, in some way, related to the course of SAD. Nonsignificant findings with respect to distracting response styles

and pleasant event frequency and enjoyment may be due to rigorous and time-consuming treatment protocols that may have interfered with participation in pleasant events. However, the trend toward a significant reduction in rumination over treatment suggests that future, sufficiently powered studies should explore this factor further. These results contribute to the growing body of literature examining SAD from a cognitive-behavioral perspective and highlight important areas for further investigation.

TABLES

Table 1.

Participant Demographics.

Treatment Group	CBT	LT	CBT+LT
Age, M (SD)	45.42(11.06)	43.18(8.67)	54.83(13.24)
Gender (total number)			
Male	1	1	1
Female	11	10	11
Total	12	11	12
Ethnicity (%)			
Asian	0	0	1
AA	3	0	1
Caucasian	9	11	10
Total	12	11	12
Marital Status			
Single	2	0	0
Married	4	7	8
Living Together	1	0	1
Widowed	0	0	0
Separated	0	1	0
Divorced	3	1	2
Total	10*	9*	11*

Employment

Retired	1	1	5
Homemaker	1	0	0
Teacher	0	0	4
Nurse	0	1	0
Other Medical Profession	2	3	0
Business	8	6	3
Total	12	11	12

Education Level

Graduated High School	2	0	2
Some College	2	1	1
Graduated College	4	3	3
Some Graduate School	2	0	2
Completed Grad School	2	7	4
Total	12	11	12

Note: * Represents missing data

Table 2.

Cognitive-behavioral measures at pre- and post-treatment.

Measurement Occasion *M (SD)*

Measures	Pre-treatment	Post-treatment
ATQ		
CBT	77.2(24.7)	46.7(18.7)***
LT	59.5(16.5)	41.5(8.7)***
CBT + LT	63.7(29.8)	43.0(13.3)***
DAS		
CBT	133.8(34.0)	121.6(23.7)**
LT	132.3(24.0)	119.8(34.1)**
CBT + LT	123.9(38.5)	104.2(19.2)**
PES (Frequency)		
CBT	.64(.17)	.62(.13)
LT	.76(.12)	.74(.15)
CBT + LT	.66(.17)	.68(.17)
PES (Enjoyment)		
CBT	.84(.24)	1.00(.13)
LT	1.04(.30)	1.01(.34)
CBT + LT	1.00(.37)	1.09(.41)

PES (Cross-products)

CBT	.76(.24)	.89(.19)
LT	1.00(.36)	.98(.34)
CBT + LT	.97(.44)	1.10(.47)

RSQ (Rumination)

CBT	29.7(10.5)	24.2(13.7)*
LT	22.8(9.0)	22.4(7.9)*
CBT + LT	26.5(15.8)	19.7(9.5)*

RSQ (Distraction)

CBT	15.3(11.2)	14.2(3.3)
LT	12.7(5.4)	15.2(6.7)
CBT + LT	13.8(3.5)	13.2(5.0)

Note. ATQ = Automatic Thoughts Questionnaire; DAS = Dysfunctional Attitudes Scale; PES = Pleasant Events Schedule; RSQ = Response Styles Questionnaire.
*** Significant occasion main effect, p < .001
** Significant occasion main effect, p = .005
* Nonsignificant occasion main effect, however, trended toward significance, p = .058

Table 3.

Hierarchical regression analysis using pre-treatment DAS to predict post-treatment BDI-II score.

Block	Variable	R	R²Δ	Beta	F change	*p*
1	Pre-treatment BDI-II	.078	.006	-.141	.662	.662
2	Pre-treatment DAS	.123	.009	.115	.594	.788

Table 4.

Hierarchical regression analysis using pre-treatment DAS to predict post-treatment

SIGH-SAD score.

Block	Variable	R	$R^2\Delta$	Beta	F change	*p*
1	Pre-treatment SIGH-SAD	.002	.000	.002	.000	.992
2	Pre-treatment DAS	.098	.010	.098	.311	.856

Table 5.

Logistic regression analysis using pre-treatment DAS to predict post-treatment remission status on the BDI-II.

Variables in the equation	*B*	SE	Odds Ratio	CI* (Odds)	Wald	*p*
1 Pre-treatment BDI-II	-.013	.051	.987	.893 – 1.092	.062	.804
2 Pre-treatment DAS	-.001	.013	.999	.973 – 1.025	.006	.939
3 Constant		.601				

* 95% Confidence interval for odds ratio

Table 6.

<u>Logistic regression analysis using pre-treatment DAS to predict post-treatment remission status on the SIGH-SAD.</u>

Variables in the equation	*B*	SE	Odds Ratio	CI* (Odds)	Wald	*p*
1 Pre-treatment SIGH-SAD	-.019	.058	.981	.875 – 1.099	.109	.741
2 Pre-treatment DAS	.007	.011	1.007	.984 – 1.029	.336	.562
3 Constant	-.829					

* 95% Confidence interval for odds ratio

FIGURES

Figure 1.

The cognitive model.

Core Belief

"I'm incompetent."

↓

Intermediate Belief

"If I don't understand something
perfectly, then I'm dumb."

↓

Situation → Automatic Thoughts → Reactions

Reading a book.   "This is too hard. I'll
                     never understand this." → Emotional

Sadness

→ Behavioral

Closes book

→ Physiological

Heaviness in abdomen
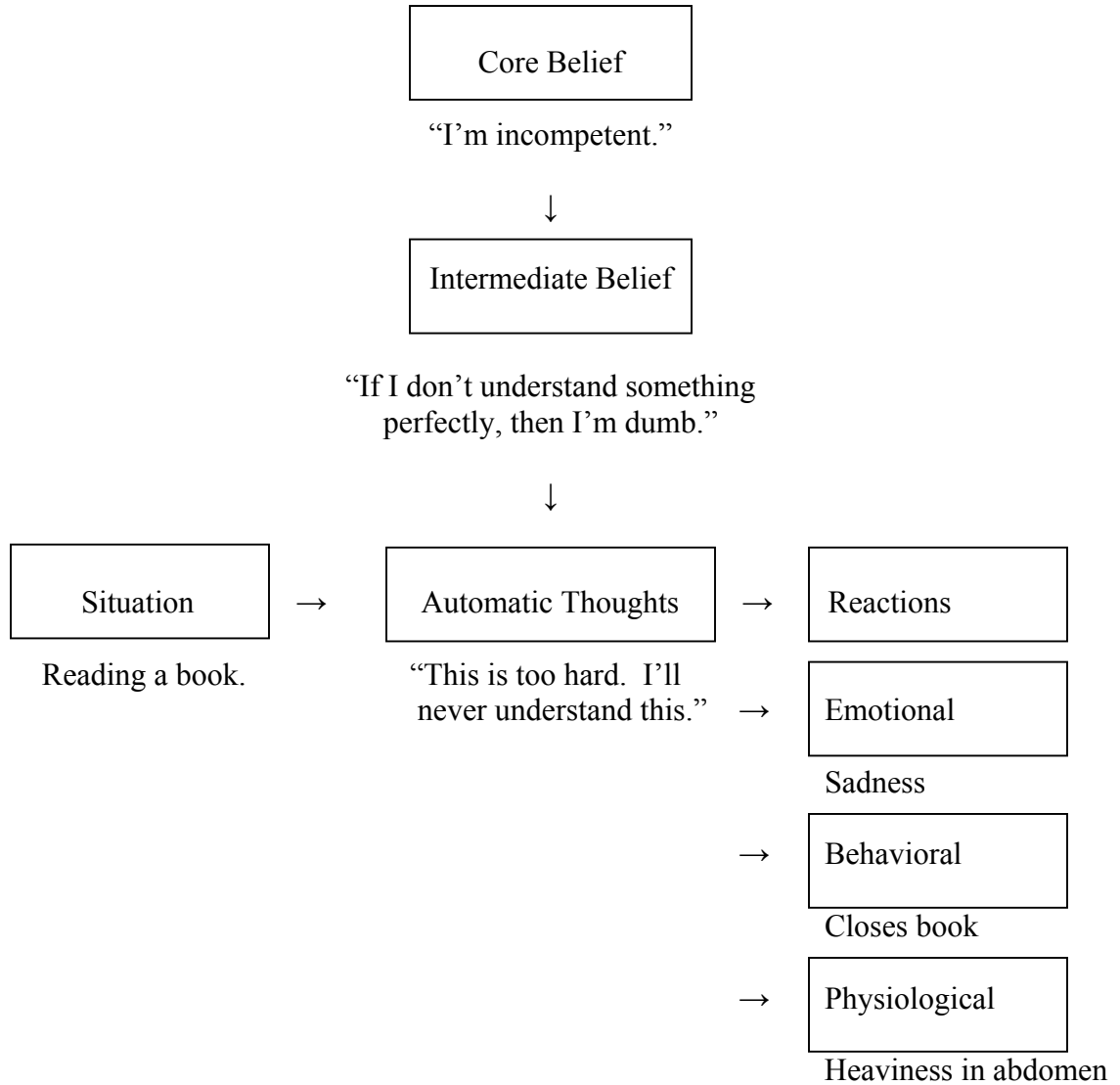
Beck, J. S. (1995). *Cognitive therapy: Basics and beyond* (1st ed.). New York: Guilford Press.

Figure 2.

<u>Integrative, cognitive-behavioral model.</u>

APPENDIX A

Definitions

Automatic thoughts – the actual words or images that go through a person's mind; situation specific and may be considered the most superficial level of cognition.

Distraction – engaging in activities that serve to divert one's attention away from their depressed mood.

Dysfunctional attitudes – an intermediate class of beliefs which consists of (often unarticulated) attitudes, rules, and assumptions.
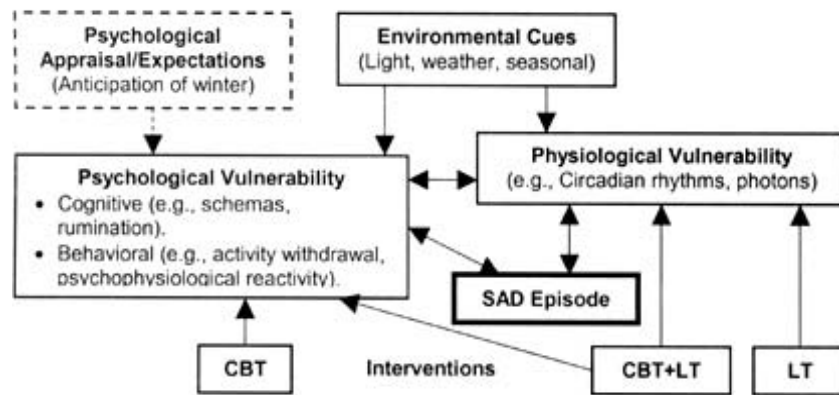
Information processing - the processes that encode and manipulate incoming information and access and retrieve previously stored information.

Response styles – the manner in which individuals tend to respond to a depressed mood; consists of rumination and distraction behaviors.

Rumination – focusing on the causes and consequences of one's depressed mood.

Schemas (core beliefs) – the most fundamental level of belief; they are global, rigid, and overgeneralized, learned in childhood, and comprise predominant beliefs one holds about the self, world, and the future.

Beck, J. S. (1995). *Cognitive therapy: Basics and beyond* (1st ed.). New York: Guilford Press.

Ingram, R. E., Kendall, P. C., Smith, T. W., Donnell, C., & Ronan, K. (1987). Cognitive specificity in emotional disorders. *Journal of Personality and Social Psychology, 53(4),* 734-742.

Nolen-Hoeksema, S., Morrow, J., & Frederickson, B.L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102,* 20-28.

Automatic Thoughts Questionnaire

Instructions: Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and put the number in the blank that most closely corresponds to your answer.

1	2	3	4	5
not at all	sometimes	moderately often	often	all the time

_____ 1. I feel like I'm up against the world.

_____ 2. I'm no good.

_____ 3. Why can't I ever succeed?

_____ 4. No one understands me.

_____ 5. I've let people down.

_____ 6. I don't think I can go on.

_____ 7. I wish I were a better person.

_____ 8. I'm so weak.

_____ 9. My life's not going the way I want it to.

_____ 10. I'm so disappointed in myself.

_____ 11. Nothing feels good anymore.

_____ 12. I can't stand this anymore.

_____ 13. I can't get started.

_____ 14. What's wrong with me?

_____ 15. I wish I were somewhere else.

_____ 16. I can't get things done.

_____ 17. I hate myself.

_____ 18. I'm worthless.

_____ 19. Wish I could just disappear.

_____ 20. What's the matter with me?

_____ 21. I'm a loser.

_____ 22. My life is a mess.

_____ 23. I'm a failure.

_____ 24. I'll never make it.

_____ 25. I feel so helpless.

_____ 26. Something has to change.

_____ 27. There must be something wrong with me.

_____ 28. My future is bleak.

_____ 29. It's just not worth it.

_____ 30. I can't finish anything.

Dysfunctional Attitudes Scale

This inventory lists different attitudes or beliefs which people sometimes hold. Read *each* statement carefully and decide how much you agree or disagree with the statement. To each of the attitudes, show your answer by circling the number that BEST DESCRIBES HOW YOU THINK, according to the screening criteria.

7	6	5	4	3	2	1
totally agree	agree very much	agree slightly	neutral	disagree slightly	disagree very much	totally disagree

Be sure to choose only one answer for each attitude. Because people are different, there is no right answer or wrong answer to these statements. To decide whether a given attitude is typical of your way of looking at things, simply keep in mind what you are like most of the time.

REMEMBER: ANSWER EACH STATEMENT ACCORDING TO THE WAY YOU THINK <u>MOST OF THE TIME</u>.

_____ 1. It is difficult to be happy unless one is good looking, intelligent, rich, and creative.

_____ 2. Happiness is more a matter of my attitude towards myself than the way other people feel

       about me.

_____ 3. People will probably think less of me if I make a mistake.

_____ 4. If I do not do well all the time, people will not respect me.

_____ 5. Taking even a small risk is foolish because the loss is likely to be a disaster.

_____ 6. It is possible to gain another person's respect without being especially talented at anything.

_____ 7. I cannot be happy unless most people I know admire me.

_____ 8. If a person asks for help, it is a sign of weakness.

_____ 9. If I do not do as well as other people, it means I am an inferior person.

_____ 10. If I fail at my work, then I am a failure as a person.

_____ 11. If you cannot do something well, there is little point in doing it at all.

_____ 12. Making mistakes is fine because I can learn from them.

_____ 13. If someone disagrees with me, it probably indicates that he does not like me.

_____ 14. If I fail partly, it is as bad as being a complete failure.

_____ 15. If other people know what you are really like they will think less of you.

_____ 16. I am nothing if a person I love doesn't love me.

_____ 17. One can get pleasure from an activity regardless of the end result.

_____ 18. People should have a reasonable likelihood of success before undertaking anything

_____ 19. My value depends greatly on what others think of me.

_____ 20. If I don't set the highest standards for myself, I am likely to end up a second rate person.

_____ 21. If I am to be a worthwhile person, I must be truly outstanding in one major respect.

7	6	5	4	3	2	1
totally agree	agree very much	agree slightly	neutral	disagree slightly	disagree very much	totally disagree

_____ 22. People who have good ideas are more worthy than those who do not.

_____ 23. I should be upset if I make a mistake.

_____ 24. My own opinions of myself are more important than others' opinions of me.

_____ 25. To be a good, moral, worthwhile person, I must help everyone who needs it.

_____ 26. If I ask a question, it makes me look inferior.

_____ 27. It is awful to be disapproved of by people important to you.

_____ 28. If you don't have other people to lean on, you are bound to be sad.

_____ 29. I can reach important goals without slave driving myself.

_____ 30. It is possible for a person to be scolded and not get upset.

_____ 31. I cannot trust other people because they might be cruel to me.

_____ 32. If others dislike you, you cannot be happy.

_____ 33. It is best to give up your own interests in order to please people.

_____ 34. My happiness depends more on other people than it does on me.

_____ 35. I do not need the approval of other people in order to be happy.

_____ 36. If a person avoids problems, the problem tends to go away.

_____ 37. I can be happy even if I miss out on many of the good things in life.

_____ 38. What other people think about me is important.

_____ 39. Being isolated from others is bound to lead to unhappiness.

_____ 40. I can find happiness without being loved by another person.

Pleasant Events Schedule

Name:_____ Date:_____

This schedule is designed to find out about the things you have enjoyed during the past month. The schedule contains a list of events or activities which people sometimes enjoy. You will be asked to go over the list twice, the first time rating each event on how many times it has happened in the past month and the second time rating each event on how pleasant it has been for you. There are no right or wrong answers.

Please rate every event. Work quickly; there are many items and you will not be asked to make fine distinctions on your ratings. The schedule should take about an hour to complete.

Directions A

On the following pages, you will find a list of activities, events, and experiences. HOW OFTEN HAVE EVENTS HAPPENED IN YOU LIFE IN THE PAST MONTH? Please answer this question by rating each item on the following scale:

0 = This has <u>not</u> happened in the past 30 days.

1 = This has happened <u>a few times</u> (1 to 6) in the past 30 days.

2 = This has happened <u>often</u> (7 or more) in the past 30 days.

Place your rating for each item in the space provided right in front of the item number.

Important: Some items will list more than one event; for these items, mark how often you have done any of the listed events. For example, item number 12 is "Doing art work (painting, sculpture, drawing, movie-making, etc.)." You should rate item number 12 on how often you have done any form of art work in the past month.

Since this list contains events that might happen to a wide variety of people, you may find that many of the events have not happened to you in the past 30 days. It is not expected that everyone will have done all of these things in one month.

A	B	
_____	_____	1. Being in the country
_____	_____	2. Wearing expensive or formal clothes
_____	_____	3. Making contributions to religious, charitable, or other groups
_____	_____	4. Talking about sports
_____	_____	5. Meeting someone new of the same sex
_____	_____	6. Taking tests when well prepared
_____	_____	7. Going to a rock concert
_____	_____	8. Playing baseball or softball
_____	_____	9. Planning trips or vacations
_____	_____	10. Buying things for myself
_____	_____	11. Being at the beach
_____	_____	12. Doing art work (painting, sculpture, drawing, movie-making, etc.)
_____	_____	13. Rock climbing or mountaineering
_____	_____	14. Reading the Scriptures or other sacred works
_____	_____	15. Playing golf

_____	_____	16. Taking part in military activities
_____	_____	17. Rearranging or redecorating my room or house
_____	_____	18. Going naked
_____	_____	19. Going to a sports event
_____	_____	20. Reading a "How To Do It" book or article
_____	_____	21. Going to the races (horse, car, boat, etc.)
_____	_____	22. Reading stories, novels, nonfiction, poems, or plays
_____	_____	23. Going to a bar, tavern, club, etc.
_____	_____	24. Going to lectures or hearing speakers
_____	_____	25. Driving skillfully
_____	_____	26. Breathing clean air
_____	_____	27. Thinking up or arranging a song or music
_____	_____	28. Getting drunk
_____	_____	29. Saying something clearly
_____	_____	30. Boating (canoeing, kayaking, motor-boating)
_____	_____	31. Pleasing my parents
_____	_____	32. Restoring antiques, refinishing furniture, etc.
_____	_____	33. Watching TV
_____	_____	34. Talking to myself
_____	_____	35. Camping
_____	_____	36. Working in politics
_____	_____	37. Working on machines (cars, bikes, motorcycles, tractors, etc.)
_____	_____	38. Thinking about something good in the future
_____	_____	39. Playing cards
_____	_____	40. Completing a difficult task
_____	_____	41. Laughing
_____	_____	42. Solving a problem, puzzle, crossword, etc.
_____	_____	43. Being at weddings, baptisms, confirmations, etc.
_____	_____	44. Criticizing someone
_____	_____	45. Shaving
_____	_____	46. Having lunch with friends or associates
_____	_____	47. Taking powerful drugs
_____	_____	48. Playing tennis
_____	_____	49. Taking a shower
_____	_____	50. Driving long distances
_____	_____	51. Woodworking, carpentry
_____	_____	52. Writing stories, novels, plays, or poetry
_____	_____	53. Being with animals
_____	_____	54. Riding in an airplane
_____	_____	55. Exploring (hiking away from unknown routes, spelunking, etc.)
_____	_____	56. Having a frank and open conversation
_____	_____	57. Singing in a group
_____	_____	58. Thinking about myself or my problems
_____	_____	59. Working on my job
_____	_____	60. Going to a party
_____	_____	61. Going to church functions (socials, classes, bazaars, etc.)
_____	_____	62. Speaking a foreign language
_____	_____	63. Going to service, civic, or social club meetings
_____	_____	64. Going to a business meeting or a convention
_____	_____	65. Being in a sporty or expensive car
_____	_____	66. Playing a musical instrument
_____	_____	67. Making snacks
_____	_____	68. Snow skiing
_____	_____	69. Being helped
_____	_____	70. Wearing informal clothes
_____	_____	71. Combing or brushing my hair

_____	_____	72. Acting
_____	_____	73. Taking a nap
_____	_____	74. Being with friends
_____	_____	75. Canning, freezing, making preserves, etc.
_____	_____	76. Driving fast
_____	_____	77. Solving a personal problem
_____	_____	78. Being in a city
_____	_____	79. Taking a bath
_____	_____	80. Singing to myself
_____	_____	81. Making food or crafts to sell or give away
_____	_____	82. Playing pool or billiards
_____	_____	83. Being with my grandchildren
_____	_____	84. Playing chess or checkers
_____	_____	85. Doing craft work (pottery, jewelry, leather, beads, weaving, etc.)
_____	_____	86. Weighing myself
_____	_____	87. Scratching myself
_____	_____	88. Putting on makeup, fixing my hair, etc.
_____	_____	89. Designing or drafting
_____	_____	90. Visiting people who are sick, shut in, or in trouble
_____	_____	91. Cheering, rooting
_____	_____	92. Bowling
_____	_____	93. Being popular at a gathering
_____	_____	94. Watching wild animals
_____	_____	95. Having an original idea
_____	_____	96. Gardening, landscaping, or doing yard work
_____	_____	97. Shoplifting
_____	_____	98. Reading essays or technical, academic, or professional literature
_____	_____	99. Wearing new clothes
_____	_____	100. Dancing
_____	_____	101. Sitting in the sun
_____	_____	102. Riding a motorcycle
_____	_____	103. Just sitting and thinking
_____	_____	104. Social drinking
_____	_____	105. Seeing good things happen to my family or friends
_____	_____	106. Going to a fair, carnival, circus, zoo, or amusement park
_____	_____	107. Talking about philosophy or religion
_____	_____	108. Gambling
_____	_____	109. Planning or organizing something
_____	_____	110. Smoking marijuana
_____	_____	111. Having a drink by myself
_____	_____	112. Listening to the sounds of nature
_____	_____	113. Dating, courting, etc.
_____	_____	114. Having a lively talk
_____	_____	115. Racing in a car, motorcycle, boat, etc.
_____	_____	116. Listening to the radio
_____	_____	117. Having friends come to visit
_____	_____	118. Playing in a sporting competition
_____	_____	119. Introducing people I think would like each other
_____	_____	120. Giving gifts
_____	_____	121. Going to school or government meetings, court sessions, etc.
_____	_____	122. Getting massages or backrubs
_____	_____	123. Getting letters, cards, or notes
_____	_____	124. Watching the sky, clouds, or a storm
_____	_____	125. Going on outings (to the park, a picnic, a barbecue, etc.)
_____	_____	126. Playing basketball
_____	_____	127. Buying something for my family

_____	_____	128. Photography
_____	_____	129. Giving a speech or lecture
_____	_____	130. Reading maps
_____	_____	131. Gathering natural objects (wild foods or fruits, rocks, driftwood, etc.)
_____	_____	132. Working on my finances
_____	_____	133. Wearing clean clothes
_____	_____	134. Making a major purchase or investment (car, appliance, house, stocks, etc.)
_____	_____	135. Helping someone
_____	_____	136. Being in the mountains
_____	_____	137. Getting a job advancement (being promoted, given a raise, or offered a better job; getting accepted to a better school, etc.)
_____	_____	138. Hearing jokes
_____	_____	139. Winning a bet
_____	_____	140. Talking about my children or grandchildren
_____	_____	141. Meeting someone new of the opposite sex
_____	_____	142. Going to a revival or crusade
_____	_____	143. Talking about my health
_____	_____	144. Seeing beautiful scenery
_____	_____	145. Eating good meals
_____	_____	146. Improving my health (having my teeth fixed, getting new glasses, changing my diet, etc.)
_____	_____	147. Being downtown
_____	_____	148. Wrestling or boxing
_____	_____	149. Hunting or shooting
_____	_____	150. Playing in a musical group
_____	_____	151. Hiking
_____	_____	152. Going to a museum or exhibit
_____	_____	153. Writing papers, essays, articles, reports, memos, etc.
_____	_____	154. Doing a job well
_____	_____	155. Having spare time
_____	_____	156. Fishing
_____	_____	157. Loaning something
_____	_____	158. Being noticed as sexually attractive
_____	_____	159. Pleasing employers, teachers, etc.
_____	_____	160. Counseling someone
_____	_____	161. Going to a health club, sauna bath, etc.
_____	_____	162. Having someone criticize me
_____	_____	163. Learning to do something new
_____	_____	164. Going to a "drive-in" (Dairy Queen, McDonald's, etc.)
_____	_____	165. Complimenting or praising someone
_____	_____	166. Thinking about people I like
_____	_____	167. Being at a fraternity or sorority
_____	_____	168. Taking revenge on someone
_____	_____	169. Being with my parents
_____	_____	170. Horseback riding
_____	_____	171. Protesting social, political, or environmental conditions
_____	_____	172. Talking on the telephone
_____	_____	173. Having daydreams
_____	_____	174. Kicking leaves, sand, pebbles, etc.
_____	_____	175. Playing lawn sports (badminton, croquet, shuffleboard, horseshoes, etc.)
_____	_____	176. Going to school reunions, alumni meetings, etc.
_____	_____	177. Seeing famous people
_____	_____	178. Going to the movies
_____	_____	179. Kissing
_____	_____	180. Being alone
_____	_____	181. Budgeting my time

_____	_____	182. Cooking meals
_____	_____	183. Being praised by people I admire
_____	_____	184. Outwitting a "superior"
_____	_____	185. Feeling the presence of the Lord in my life
_____	_____	186. Doing a project in my own way
_____	_____	187. Doing "odd jobs" around the house
_____	_____	188. Crying
_____	_____	189. Being told I am needed
_____	_____	190. Being at a family reunion or get-together
_____	_____	191. Giving a party or get-together
_____	_____	192. Washing my hair
_____	_____	193. Coaching someone
_____	_____	194. Going to a restaurant
_____	_____	195. Seeing or smelling a flower or plant
_____	_____	196. Being invited out
_____	_____	197. Receiving honors (civic, military, etc.)
_____	_____	198. Using cologne, perfume, or aftershave
_____	_____	199. Having someone agree with me
_____	_____	200. Reminiscing, talking about old times
_____	_____	201. Getting up early in the morning
_____	_____	202. Having peace and quiet
_____	_____	203. Doing experiments or other scientific work
_____	_____	204. Visiting friends
_____	_____	205. Writing in a diary
_____	_____	206. Playing football
_____	_____	207. Being counseled
_____	_____	208. Saying prayers
_____	_____	209. Giving massages or backrubs
_____	_____	210. Hitchhiking
_____	_____	211. Meditating or doing yoga
_____	_____	212. Seeing a fight
_____	_____	213. Doing favors for people
_____	_____	214. Talking with people on the job or in class
_____	_____	215. Being relaxed
_____	_____	216. Being asked for help or advice
_____	_____	217. Thinking about other people's problems
_____	_____	218. Playing board games (Monopoly, Scrabble, etc.)
_____	_____	219. Sleeping soundly at night
_____	_____	220. Doing heavy outdoor work (cutting or chopping wood, clearing land, farm work, etc.)
_____	_____	221. Reading the newspaper
_____	_____	222. Shocking people, swearing, making obscene gestures, etc.
_____	_____	223. Snowmobiling or dune-buggy riding
_____	_____	224. Being in a body-awareness, sensitivity, encounter, therapy, or "rap" group
_____	_____	225. Dreaming at night
_____	_____	226. Playing Ping-Pong
_____	_____	227. Brushing my teeth
_____	_____	228. Swimming
_____	_____	229. Being in a fight
_____	_____	230. Running, jogging, or doing gymnastics, fitness, or field exercises
_____	_____	231. Walking barefoot
_____	_____	232. Playing frisbee or catch
_____	_____	233. Doing housework or laundry; cleaning things
_____	_____	234. Being with my roommate
_____	_____	235. Listening to music
_____	_____	236. Arguing

_____ _____ 237. Knitting, crocheting, embroidery, or fancy needlework
_____ _____ 238. Petting, necking
_____ _____ 239. Amusing people
_____ _____ 240. Talking about sex
_____ _____ 241. Going to a barber or beautician
_____ _____ 242. Having house guests
_____ _____ 243. Being with someone I love
_____ _____ 244. Reading magazines
_____ _____ 245. Sleeping late
_____ _____ 246. Starting a new project
_____ _____ 247. Being stubborn
_____ _____ 248. Having sexual relations
_____ _____ 249. Having other sexual satisfactions
_____ _____ 250. Going to the library
_____ _____ 251. Playing soccer, rugby, hockey, lacrosse, etc.
_____ _____ 252. Preparing a new or special food
_____ _____ 253. Birdwatching
_____ _____ 254. Shopping
_____ _____ 255. Watching people
_____ _____ 256. Building or watching a fire
_____ _____ 257. Winning an argument
_____ _____ 258. Selling or trading something
_____ _____ 259. Finishing a project or task
_____ _____ 260. Confessing or apologizing
_____ _____ 261. Repairing things
_____ _____ 262. Working with others as a team
_____ _____ 263. Bicycling
_____ _____ 264. Telling people what to do
_____ _____ 265. Being with happy people
_____ _____ 266. Playing party games
_____ _____ 267. Writing letters, cards, or notes
_____ _____ 268. Talking about politics or public affairs
_____ _____ 269. Asking for help or advice
_____ _____ 270. Going to banquets, luncheons, potlucks, etc.
_____ _____ 271. Talking about my hobby or special interest
_____ _____ 272. Watching attractive women or men
_____ _____ 273. Smiling at people
_____ _____ 274. Playing in sand, a stream, the grass, etc.
_____ _____ 275. Talking about other people
_____ _____ 276. Being with my husband or wife
_____ _____ 277. Having people show interest in what I have
_____ _____ 278. Going on field trips, nature walks, etc.
_____ _____ 279. Expressing my love to someone
_____ _____ 280. Smoking tobacco
_____ _____ 281. Caring for house plants
_____ _____ 282. Having coffee, tea, a coke, etc., with friends
_____ _____ 283. Taking a walk
_____ _____ 284. Collecting things
_____ _____ 285. Playing handball, paddleball, squash, etc.
_____ _____ 286. Sewing
_____ _____ 287. Suffering for a good cause
_____ _____ 288. Remembering a departed friend or loved one, visiting the cemetery
_____ _____ 289. Doing things with children
_____ _____ 290. Beachcombing
_____ _____ 291. Being complimented or told I have done well
_____ _____ 292. Being told I am loved

_____	_____	293. Eating snacks
_____	_____	294. Staying up late
_____	_____	295. Having family members or friends do something that makes me proud of them
_____	_____	296. Being with my children
_____	_____	297. Going to auctions, garage sales, etc.
_____	_____	298. Thinking about an interesting question
_____	_____	299. Doing volunteer work, working on community service projects
_____	_____	300. Water skiing, surfing, scuba diving
_____	_____	301. Receiving money
_____	_____	302. Defending or protecting someone; stopping fraud or abuse
_____	_____	303. Hearing a good sermon
_____	_____	304. Picking up a hitchhiker
_____	_____	305. Winning a competition
_____	_____	306. Making a new friend
_____	_____	307. Talking about my job or school
_____	_____	308. Reading cartoons, comic strips, or comic books
_____	_____	309. Borrowing something
_____	_____	310. Traveling with a group
_____	_____	311. Seeing old friends
_____	_____	312. Teaching someone
_____	_____	313. Using my strength
_____	_____	314. Traveling
_____	_____	315. Going to office parties or departmental get-togethers
_____	_____	316. Attending a concert, opera, or ballet
_____	_____	317. Playing with pets
_____	_____	318. Going to a play
_____	_____	319. Looking at the stars or moon
_____	_____	320. Being coached

Directions B

Now please go over the list once again. This time ask yourself the following questions: HOW
PLEASANT, ENJOYABLE, OR REWARDING WAS EACH EVENT DURING THE PAST MONTH?
Please answer this question by rating each event on the following scale in column B.
For those events that you haven't engaged in over the past month, rate how enjoyable you think it WOULD
HAVE BEEN for you.

0 = This was not pleasant. (Use this rating for those events that were either neutral or unpleasant.)

1 = This was somewhat pleasant. (Use this rating for events that were mildly or moderately pleasant.)

2 = This was very pleasant. (Use this rating for events that were strongly or extremely pleasant.)

Response Styles Questionnaire

People think and do many different things when they feel depressed. Please read each of the items below and indicate whether you never, sometimes, often, or always think or do each one when you feel down, sad, or depressed. Please indicate what you generally do, not what you think you should do.

0 — Almost Never
1 — Sometimes
2 — Often
3 — Almost Always

_____ 1. Think about how alone you feel.

_____ 2. Think "I won't be able to do my job/work because I feel so badly."

_____ 3. Think about your feelings of fatigue and achiness.

_____ 4. Think about how hard it is to concentrate.

_____ 5. Try to find something positive in the situation or something you learned.

_____ 6. Think "I'm going to do something to make myself feel better."

_____ 7. Help someone else with something in order to distract yourself.

_____ 8. Think about how passive and unmotivated you feel.

_____ 9. Remind yourself that these feelings won't last.

_____ 10. Analyze recent events to try to understand why you are depressed.

_____ 11. Think about how you don't seem to feel anything anymore.

_____ 12. Think "Why can't I get it done?"

_____ 13. Think "Why do I always react this way?"

_____ 14. Go to a favorite place to get your mind off your feelings.

_____ 15. Go away by yourself and think about why you feel this way.

_____ 16. Think "I'll concentrate on something other than how I feel."

_____ 17. Write down what you are thinking about and analyze it.

_____ 18. Do something that has made you feel better in the past.

_____ 19. Think about a recent situation, wishing it had gone better.

_____ 20. Think "I'm going to go out and have some fun."

_____ 21. Concentrate on your work.

_____ 22. Think about how sad you feel.

_____ 23. Think about all your shortcomings, failings, faults, mistakes.

_____ 24. Do something you enjoy.

_____ 25. Think about how you don't feel up to doing anything.

_____ 26. Do something fun with a friend.

_____ 27. Analyze your personality to try to understand why you are depressed.

_____ 28. Go someplace alone to think about your feelings.

_____ 29. Think about how angry you are with yourself.

_____ 30. Listen to sad music.

_____ 31. Isolate yourself and think about the reasons why you feel sad.

_____ 32. Try to understand yourself by focusing on your depressed feelings.

Structured Interview for the Hamilton Depression Rating Scale—Seasonal Affective Disorder Version (SIGH-SAD)

OVERVIEW: I'd like to ask you some questions about the past week, since last (DAY OF WEEK). How have you been feeling since then?

H1.   What's your mood been like this past week (compared to when you feel OK)?

Have you been feeling down or depressed?

Sad? Hopeless? Helpless? Worthless?

In the last week, how often have you felt (OWN EQUIVALENT)? Every day? All day?

Have you been crying at all?

DEPRESSED MOOD (sadness, Hopeless, helpless, worthless):

0 = absent
1 = indicated only on questioning
2 = spontaneously reported verbally
3 = communicated non-verbally, i.e. facial expression, posture, voice tendency to weep
4 = VIRTUALLY ONLY; this in spontaneous verbal and non-verbal communication

IF SCORED 1-4 ABOVE, ASK: How long have you been feeling this way?

H2.   IF OUTPATIENT: Have you been working this week (in or out of the home)?
IF NOT: Why not?

IF WORKING: Have you been able to get as much (work) done as you usually do (when you're feeling OK)?

How have you been spending your time this past week (when not at work)?

Have you felt interested in doing (THOSE THINGS), or do you feel you have to push yourself to do them?

Have you stopped doing anything you used to do? IF YES: Why?

Is there anything you look forward to?

WORK AND ACTIVITIES:

0 = no difficulty
1 = thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies
2 = loss of interest in activity, hobbies or work – by direct report of the patient or indirect in listlessness, indecision And vacillation (feels he has to push self to do work or activities)
3 = decrease in actual time spent in activities or decrease in productivity. In hospital, patient spends less than 3 hours/day in activities (hospital job or hobbies) exclusive of ward chores
4 = stopped working because of present illness. In hospital, no activities except ward chores, or fails to perform ward chores unassisted

A1.   In the last week, have you been as
social as when you feel well?

IF NO: Tell me which fits you best.
(READ DOWN ANCHOR DESCRIPTIONS
AND RATE ACCORDINGLY.)

*SOCIAL WITHDRAWAL:

0 = interacts with other people as usual
1 = less interested in socializing with
      others but continues to do so
2 = interacting less with other people in
      social (optional) situations
3 = interacting less with other people in
      work or family situations (i.e., where
      it is necessary)
4 = marked withdrawal from others in
      family or work situations

H3.   This week, how has your interest in sex
been? (I'm not asking about actual
sexual activity, but about your interest
in sex – how much you think about it.)

Has there been any change in your interest
in sex (from when you were not depressed)?

Is it something you've thought much about?
IF NO: Is that unusual for you compared to
when you feel well? (Is it a little less or a
lot less?)

GENITAL SYMPTOMS (such as loss of
libido, menstrual disturbances):

0 = absent
1 = mild
2 = severe

H4.   How has your appetite been this past
week? (What about compared to your
usual appetite?)

Have you had to force yourself to eat?

Have other people had to urge you to
eat? (Have you skipped meals?)

Have you had any stomach or intestinal
problems? (Have you needed to take
anything for that?)

SOMATIC SYMPTOMS:
GASTROINTESTINAL

0 = none
1 = loss of appetite but eating without
      encouragement
2 = difficulty eating without urging:
      requests or requires laxatives or
      medication for G.I. symptoms

H5.	Have you lost any weight since you started feeling depressed or down? IF YES: Did you lose any weight this last week? (Was it because of feeling depressed?) How much did you lose? IF NOT SURE: Do you think your clothes are any looser on you?	LOSS OF WEIGHT (Rate either A or B): A. When rating by history: 0 = no weight loss 1 = probable weight loss due to current depression 2 = definite (according to patient) weight loss due to depression 3 = not assessed B. When actual weight changes are measured: 0 = less than 1 pound loss in week 1 = greater than 1 pound loss in week 2 = greater than 2 pounds loss in week 3 = not assessed
A2.	Have you gained any weight in the last week? IF YES: Was it because of feeling depressed or down? How much did you gain?	*WEIGHT GAIN: 0 = no weight gain 1 = probable weight gain due to current depression 2 = definite (according to patient) weight gain due to depression
A3.	In the past week, has your appetite been greater than when you feel well or OK? IF YES: Do you want to eat a little more, somewhat more, or much	*APPETITE INCREASE: 0 = no increase in appetite 1 = wants to eat a little more than usual more than when you feel well or OK? 2 = wants to eat somewhat more than normal 3 = wants to eat much more than usual
A4.	In the past week, have you actually been eating more than when you feel well or OK? IF YES: A little more, somewhat more, or much more than when you feel well or OK?	*INCREASED EATING 0 = is not eating more than usual 1 = is eating a little more than usual 2 = is eating somewhat more than usual 3 = is eating much more than normal

A5. In the last week, have you been craving or eating more starches or sugars?

*CARBOHYDRATE CRAVING OR EATING (in relation to total amount of food desired or eaten)

IF YES: Have you been eating or craving starches or sugars <u>more</u> than when you feel well or OK, much more, or has it been irresistible?

0 = no change in food preference or consumption
1 = craving or eating more carbohydrates (starches or sugars) than before
2 = craving or eating much more carbohydrates than before
3 = irresistible craving or eating of sweets or starches

Has it been mainly starches or mainly sweets? Which specific foods have you been craving?
LIST:

CIRCLE ONE OR BOTH: Mainly starches   Mainly sweets   Both

Have you actually been eating more starches or sweets, or just craving them?

CIRCLE ONE OR BOTH: Craving   Eating   Both

Has the (CRAVING OR EATING) occurred at any particular time of day?
(_____o'clock)

USUAL TIME OF CRAVING OR EATING:

0 = it comes and goes at various times
1 = usually morning
2 = usually afternoon or evening
3 = virtually all the time

RATER NOTE: IF BOTH CRAVING AND EATING, RATE TIME OF EATING. DO NOT COUNT ABOVE SCORE IN TOTALS.

H6. I'd like to ask you now about your sleeping during the past week.

INSOMNIA EARLY (INITIAL INSOMNIA):

Have you had any trouble falling asleep at the beginning of the night? (Right after you go to bed, how long has it been taking you to fall asleep?)

0 = no difficulty falling asleep
1 = complains of occasional difficulty falling asleep – i.e., more than ½ hour
2 = complains of nightly difficulty falling asleep

How many nights this week have you had trouble falling asleep?

H7. During the past week, have you been waking up in the middle of the night? IF YES: Do you get out of bed? What do you do? (Only go to the bathroom?)

When you get back in bed, are you able able to fall right back asleep?

Have you felt your sleeping has been restless or disturbed some nights?

INSOMNIA MIDDLE:

0 = no difficulty
1 = complains of being restless and disturbed during the night
2 = waking during the night – any getting out of bed (except to void)

H8. What time have you been waking up in the morning for the last time, this past week?

IF EARLY: Is that with an alarm clock, or do you just wake up yourself?

What time do you usually wake up (that is, when you feel well)?

INSOMNIA LATE (TERMINAL INSOMNIA):
0 = no difficulty
1 = waking in early hours of morning but goes back to sleep
2 = unable to fall asleep again if gets out of bed

A6. Have you been sleeping more than usual this past month? IF YES: How much more? IF NO: What about weekends?

(What time have you been falling asleep? Have you been taking naps? That means you've been sleeping about ___ hours a day altogether? How much time do you usually sleep when you feel well?)

*HYPERSOMNIA (Compare sleep length to euthymic and NOT to euthymic and NOT to hypomanic sleep length. (If this cannot be established, use 8 hours):

0 = no increase in sleep length
1 = at least 1 hour increase in sleep length
2 = 2-hour increase
3 = 3-hour increase
4 = 4-hour increase

Sleep length used (circle one):

euthymic (___ hrs)   8-hour

H9.   How has your energy been this past
        week?

        IF LOW ENERGY: Have you felt tired?
        (How much of the time? How bad has
        it been?)

        This week, have you had any aches or
        pains? (What about backaches,
        headaches, or muscle aches?

        Have you felt any heaviness in your
        limbs, back or head?

SOMATIC SYMPTOMS GENERAL:

0 = none
1 = heaviness in limbs, back or head.
    Backaches, headaches, muscle
    aches. Loss of energy and fatigability.
2 = any clear-cut symptom

A7.   IF ACKNOWLEDGED FEELING TIRED ON
        PREVIOUS ITEM: How much of the time
        have you felt tired? (Every day? How much
        of each day?)

        Very tired, or just a little?

*FATIGABILITY (or low energy, or
feelings of being heavy, leaden,
weighed down);

0 = does not feel more fatigued than
    usual
1 = feels more fatigued than usual but
    this has not impaired function
    significantly; less frequent than in (2)
2 = more fatigued than usual; at least
    one hour a day; at least three days a
    week
3 = fatigued much of the time most days
4 = fatigued almost all the time

H10.   Have you been putting yourself down,
        this past week, feeling you've done
        things wrong, or let others down?
        If Yes: What have your thoughts been?

        Have you been feeling guilty about
        anything that you've done or not done?
        What about things that happened a long
        time ago?

        Have you thought that you've brought
        (THIS DEPRESSION) on yourself in
        same way?

        Do you feel your being sick is a
        punishment?

FEELINGS OF GUILT:

0 = absent
1 = self-reproach, feels he/she has let
    people down
2 = ideas of guilt or rumination over
    past errors or sinful deeds
3 = present illness is a punishment:
    delusions of guilt
4 = hears accusatory or denunciatory
    voices and/or experiences
    threatening visual hallucinations

H11. This past week, have you had any thoughts that life is not worth living? IF YES: What about thinking you'd be better off dead? Have you had thoughts of hurting or killing yourself?

IF YES: What have you thought about? Have you actually done anything to hurt yourself?

SUICIDE:

0 = absent
1 = feels life is not worth living
2 = wishes he were dead or any thoughts of possible death to self
3 = suicidal ideas or gesture
4 = attempts at suicide

H12. Have you been feeling especially tense or irritable this past week? IF YES: Is this more than when you are not depressed or down?

Have you been unusually argumentative or impatient?

Have you been worrying a lot about little things, things you don't ordinarily worry about? IF YES: Like what, for example?

ANXIETY PSYCHIC:

0 = no difficulty
1 = subjective tension and irritability
2 = worrying about minor matters
3 = apprehensive attitude apparent in face or speech
4 = fears expressed without questioning

H13. In this past week, have you had any of the following physical symptoms? (READ LIST, PAUSING AFTER EACH SX FOR REPLY. CIRCLE POSITIVE SXS.)

Have you had these only while you've been feeling depressed or down? IF YES: How much have these things been bothering you this past week? (How bad have they gotten? How much of the time, or how often, have you had them?)

Do you have any physical illness or are you taking any medication that could be causing these symptoms?

(IF YES, RECORD PHYSICAL ILLNESS OR MEDICATION, BUT RATE SYMPTOMS ANYWAY:_____)

ANXIETY SOMATIC -physiologic
Concomitants of anxiety, such as:
GI – dry mouth, indigestion, gas diarrhea, stomach cramps, belching
C-V – heart palpitations, headaches
Resp – hyperventilating, sighing, having to urinate frequently sweating:

0 = absent
1 = mild
2 = moderate
3 = severe
4 = incapacitating

H14. In the last week, how much have your thoughts been focused on your physical health or how your body is working (compared to your normal thinking)? (Have you worried a lot about being or becoming physically ill? Have you really been preoccupied with this?)

Do you complain much about how you feel physically?

Have you found yourself asking for help with things you could really do yourself? IF YES: Like what, for example? How often has that happened?

HYPOCHONDRIASIS:

0 = not present
1 = self-absorption (bodily)
2 = preoccupation with health
3 = frequent complaints, requests for help, etc.
4 = hypochondriacal delusions

H15. RATING BASED ON OBSERVATION DURING INTERVIEW.

INSIGHT:

0 = acknowledges being depressed and ill OR not currently depressed
1 = acknowledges illness but attributes cause to bad food, overwork, virus, need for rest, etc.
2 = denies being ill at all

H16. RATING BASED ON OBSERVATION DURING INTERVIEW

IF TELEPHONE INTERVIEW: Do you feel that your speech or physical movements are sluggish? Has anyone actually commented on this?

RETARDATION (slowness of thought and speech; impaired ability to concentrate; decreased motor activity):

0 = normal speech and thought
1 = slight retardation at interview
2 = obvious retardation at interview
3 = interview difficult
4 = complete stupor

H17. RATING BASED ON OBSERVATION INTERVIEW.

IF TELEPHONE INTERVIEW: As we talk, are you fidgeting at all, or having trouble sitting still? For instance, are you doing anything like playing with your hands or your hair, or tapping your foot? Do others notice that you are restless?

AGITATION:

0 = none
1 = fidgetiness
2 = playing with hands, hair, etc.
3 = moving about, can't sit still
4 = hand- wringing, nail biting, hair-pulling, biting of lips

17-ITEM TOTAL SCORE HAMILTON DEPRESSION   _____

Over the past week, in the first few hours after waking up have you been feeling better or worse or no different from before you go to sleep?

DIURNAL VARIATION TYPE A:

A. Note whether symptoms are worse after awakening or before sleeping. If NO diurnal variation, mark none:
0 = no variation OR not currently depressed
1 = worse after awakening
2 = worse before going to sleep

RATER NOTE: DO NOT COUNT ABOVE SCORE IN SCALE TOTALS.

H18.   IF VARIATION: How much worse do you feel in the (MORNING OR EVENING)?
IF UNSURE: A little bit worse or a lot worse?

B. When present, mark the severity of the variation:
0 = none
1 = mild
2 = severe

A8.   This week, have you regularly had a slump in your mood or energy in the afternoon or evening?

IF YES: Is it mostly in your mood or your energy? Does it occur every day? At what time has the slump usually begun? (_____o'clock). When has it ended? Has that been at least an hour before you go to sleep? How big a slump do you have – would you say it's generally mild, moderate, or severe?

*DIURNAL VARIATION TYPE B:

0 = no
1 = yes, of mild intensity
2 = yes, of moderate intensity
3 = yes, of severe intensity

CIRCLE ONE   Mood   Energy
OR BOTH: Slump   Slump

NOTE: RATE ONLY SLUMPS THAT ARE FOLLOWED BY AT LEAST AN HOUR OF RECOVERED MOOD OR ENERGY BEFORE SLEEP.

H19.   In the past week, have you ever suddenly had the sensation that everything is unreal, or you're in a dream, or cut off people in some strange way?

IF YES: Tell me about it. How bad has that been? How often this week has that happened?

DEPERSONALIZATION AND DEREALIZATION
(such as feelings of unreality and from other Nihilistic ideas):

0 = absent
1 = mild
2 = moderate
3 = severe
4 = incapacitating

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H20. This past week, have you thought that anyone was trying to give you a hard time or hurt you?

What about talking about you behind your back?

IF YES: Tell me about that.

PARANOID SYMPTOMS:

0 = none
1 = suspicious
2 = ideas of reference
3 = delusions of reference and persecution

H21. In the past week, have there been things you've had to do over and over again, like checking the locks on the doors several times, or washing your hands? IF YES: Can you give me an example?

Have you had any thoughts that don't make any sense to you, but that keep running over and over in your mind? IF YES: Can you give me an example?

OBSESSIONAL AND COMPULSIVE SYMPTOMS:

0 = absent
1 = mild
2 = severe

21-ITEM TOTAL SCORE HAMILTON DEPRESSION (without starred items):   _____ _____

TOTAL 8-ITEM ATYPICAL SCORE (starred items only):   _____ _____

TOTAL 29-ITEM SIGH-SAD SCORE   _____ _____

ATYPICAL BALANCE SCORE (total 8-item atypical score divided by total 29-item SIGH-SAD score, multiplied by 100):   _____ _____ • _____

NOTE: If patient is not depressed and score is derived primarily from symptoms of hypomania (e.g., items H4, H5, H6, H7, H8, H12, H17), administer HIGH-SAD and report both scores.

REFERENCES

American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: Author.

Azam, O., & Young, M. A. (1998) November. *Ruminative response style as a predictor of severity of seasonal affective disorder.* Paper presented at the annual meeting of the Society for Research in Psychopathology, Cambridge, MA.

Azam, O., & Young, M. A. (2001). *Ruminative response style and the severity of winter depression.* Manuscript submitted for publication.

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects.* New York: Hoeber.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders*. New York: International Universities Press.

Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.

Beck, A. T., & Steer, R. A. (1987). *Manual for the Revised Beck Depression Inventory*. San Antonio: The Psychological Corporation.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory – 2nd Edition.* San Antonio: The Psychological Corporation.

Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory. *Clinical Psychology Review, 8(1),* 77-100.

Beck, J. S. (1995). *Cognitive therapy: Basics and beyond* (1st ed.). New York: Guilford Press.

Blackburn, I. M., Eunson, K. M., & Bishop, S. (1986). A two-year naturalistic follow-up of depressed patients treated with cognitive therapy, pharmacotherapy and a combination of both. *Journal of Affective Disorders, 10(1),* 67-75.

Bowers, W. A. (1990). Treatment of depressed inpatients. *British Journal of Psychiatry, 156,* 73-78.

Butler, A. C., & Beck, J. S. (2001). Cognitive therapy outcomes: A review of meta-analysis. *Tidsskrift for Norsk Psykologforening, 38,* 698-706.

Cohen, J. C. (1977). *Statistical power analysis for the behavioral sciences (Rev. ed.).* New York: Academic Press.

Coyne, J. C. (1980). A critique of cognitions as causal entities with particular reference to depression. *Cognitive Therapy and Research, 6,* 3-13.

Coyne, J. C., & Gotlib, I. (1983). The role of cognition in depression: A critical appraisal. *Psychological Bulletin, 94,* 472-505.

DeRubeis, R. J., Evans, M. D., Hollon, S. D., Garvey, M. J., Grove, W. M., & Tuason, V. B. (1990). How does cognitive therapy work? Cognitive change and symptom change in cognitive therapy and pharmacotherapy for depression. *Journal of Consulting and Clinical Psychology, 58(6),* 862-869.

DeRubeis, R. J., Gelfand, L. A., Tang, T. Z., & Simons, A. D. (1999). Medication versus cognitive behavior therapy for severely depressed outpatients: Mega-analysis of four randomized comparisons. *American Journal of Psychiatry, 156,* 1007-1013.

Deutsch, M. & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgment. *Journal of Abnormal and Social Psychology, 51,* 629-636.

Dobson, K. S. (1989). A meta-analysis of the efficacy of cognitive therapy for

    depression. *Journal of Consulting and Clinical Psychology, 57(3),* 414-419.

Dobson, K. S., & Breiter, H. J. (1983). Cognitive assessment of depression: Reliability

    and validity of three measures. *Journal of Abnormal Psychology, 92,* 107-109.

Fava, M., Bless, E., Otto, M. W., Pava, J. A., & Rosenbaum, J. F. (1994). Dysfunctional

    attitudes in major depression. *Journal of Nervous and Mental Disease, 182,* 45-

    49.

Fava, G. A., Grandi, S., Zielezny, M., Rafanelli, C., & Canestrari, R. (1996). Four-year

    outcome for cognitive behavioral treatment of residual symptoms in major

    depression. *American Journal of Psychiatry, 153(7),* 945-947.

Fava, G. A., Rafanelli, C., Grandi, S., Conti, S., & Belluardo, P. (1998). Prevention of

    recurrent depression with cognitive behavioral therapy: Preliminary findings.

    Archives of General Psychiatry, 55, 816-820.

Festinger, L. (1954). A theory of social communication processes. *Human Relations, 1,*

    117-140.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured Clinical*

    Interview for DSM-IV Axis I Disorders (SCID-Clinician Version). New York:

    New York State Psychiatric Institute Biometrics Research Department.

Gloaguen, V., Cottraux, J., Cucherat, M., & Blackburn, I. (1998). A meta-analysis of the

    effects of cognitive therapy in depressed patients. *Journal of Affective Disorders,*

    49, 59-72.

Gortner, E. T., Gollan, J. K., Dobson, K. S., & Jacobson, N. S. (1998). Cognitive-behavioral treatment for depression: Relapse prevention. *Journal of Consulting and Clinical Psychology, 66,* 377-384.

Graw, P., Gisin, B., & Wirz-Justice, A. (1997). Follow-up study of seasonal affective disorder in Switzerland. *Psychopathology, 30(4),* 208-214.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74(6),* 1464-1480.

Grosscup, S. J., & Lewinsohn, P. M. (1980). Unpleasant and pleasant events and mood. *Journal of Clinical Psychology, 36(1),* 252-259.

Hamilton, M. (1960). A rating scale for depression. *Journal of Neurosurgery and Psychiatry, 23,* 56-62.

Hamilton, M. (1967). Development of a rating scale for primary depressive illness. *British Journal of Social and Clinical Psychology, 6,* 278-296.

Hammen, C., Marks, T., deMayo, R., & Mayol, A. (1985). Depressive self-schemas, life stress, and vulnerability to depression. *Journal of Abnormal Psychology, 94,* 308-319.

Harrell, T. H., & Ryon, N. B. (1983). Cognitive-behavioral assessment of depression: Clinical validation of the Automatic Thoughts Questionnaire. *Journal of Consulting and Clinical Psychology, 51,* 721-725.

Hayes, S. C. (1987). *Cognitive and behavior therapies in clinical practice.* New York: Guilford Press.

Hodges, S., & Marks, M. (1998). Cognitive characteristics of seasonal affective disorder:

    A preliminary investigation. *Journal of Affective Disorders, 50,* 59-64.

Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression:

    Development of an Automatic Thoughts Questionnaire. *Cognitive Therapy and*

    Research, 3, 383-396.

Hollon, S. D., Kendall, P. C., & Lumry, A. (1986). Specificity of depressotypic

    cognitions in clinical depression. *Journal of Abnormal Psychology, 95,* 52-59.

Hollon, S. D., & Shaw, B. F. (1979). Group cognitive therapy for depressed patients. In

    A. T. Beck, A. J. Rush, B. F. Shaw, & G. Emery (Eds.), *Cognitive therapy of*

    depression (pp. 328-353). New York: Guilford Press.

Ingram, R. E., Kendall, P. C., Smith, T. W., Donnell, C., & Ronan, K. (1987). Cognitive

    specificity in emotional disorders. *Journal of Personality and Social Psychology,*

    53(4), 734-742.

Jacobson, N. S., Dobson, K. S., Truax, P. A., Addis, M. E., Koerner, K., & Gollan, J. K.

    et al. (1996). A component analysis of cognitive-behavioral treatment for

    depression. *Journal of Counseling and Clinical Psychology, 64(2),* 295-304.

Just, N., & Alloy, L. B. (1997). The response styles theory of depression: Tests and an

    extension of the theory. *Journal of Abnormal Psychology, 2,* 221-229.

Kasper, S., Wehr, T. A., Bartko, J. J., Gaist, P. A., & Rosenthal, N. E. (1989).

    Epidemiological findings of seasonal changes in mood and behavior: A telephone

    survey of Montgomery County, Maryland. *Archives of General Psychiatry, 46,*

    823-833.

Keller, K. E. (1983). Dysfunctional attitudes and the cognitive therapy for depression. *Cognitive Therapy and Research, 7(5),* 437-444.

Labbate, L. A., Lafer, B., Thibault, A., Rosenbaum, J. F., & Sachs, G. S. (1995). Influence of phototherapy treatment duration for seasonal affective disorder: Outcome at one vs. two weeks. *Biological Psychiatry, 38,* 747-750.

Lee, T. M. C., Blashko, C. A., Janzen, H. L., Paterson, J. G., & Chan, C. C. H. (1997). Pathophysiological mechanisms of seasonal affective disorder. *Journal of Affective Disorders, 46,* 25-38.

Levitan, R. D., Rector, N. A., & Bagby, M. (1998). Negative attributional style in seasonal affective disorder. *American Journal of Psychiatry, 155,* 428-430.

Lewinsohn, P. M. (1974) *The psychology of depression: Contemporary theory and research.* In R. Friedman & M. Katz (Eds.), Washington DC: V. H. Winston.

Lewinsohn, P. M., Hoberman, H. M., Teri, L., & Hautzinger, M. (1985). *An integrative theory of depression.* In S. Reiss & R. R. Bootzin (Eds.), Theoretical issues in behavior therapy. Orlando: Academic Press.

Lingjærde, O., Bratlid, T., Hansen, T., & Grotestam, K. G. (1986). Seasonal affective disorder and midwinter insomnia in the far north: Studies on two related chronological disorders in Norway. *Proceedings of the Collegium Internationale Neuro-Psychologicum, 9,* 187-189.

Lyubomirsky, S., Caldwell, N. D., & Nolen-Hoeksema, S. (1998). Effects of rumination and distracting response to depressed mood on retrieval of autobiographical memories. *Journal of Personality and Social Psychology, 75,* 166-177.

MacPhillamy, D. J., & Lewinsohn, P. M. (1982). The Pleasant Events Schedule: Studies on reliability, validity, and scale intercorrelation. *Journal of Consulting and Clinical Psychology, 50,* 363-380.

Magnusson, A. (2000). An overview of the epidemiological studies on seasonal affective disorder. *Acta Psychiatrica Scandinavica, 101,* 176-184.

Nathan, P. E. (1998). Practice guidelines: Not yet ideal. *American Psychologist, 53,* 290-299.

Nelson, L. D., Stern, S. L., & Cicchetti, D. V. (1992). The dysfunctional attitude scale: How well can it measure depressive thinking? *Journal of Psychopathology and Behavioral Assessment, 14(3),* 217-222.

Nolen-Hoeksema, S. (1987). Sex differences in unipolar depression: Evidence and theory. *Psychological Bulletin, 101,* 259-282.

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 Loma Prieta earthquake. *Journal of personality and Social Psychology, 61,* 115-121.

Nolen-Hoeksema, S., Morrow, J., & Frederickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Psychology, 102,* 20-28.

Norušis, M. J. (1990). SPSS/PC+ advanced statistics 4.0 (1st ed.). Chicago: SPSS Inc.

Oei, T. P. S., & Yeoh, A. E. O. (1999). Pre-existing antidepressant medication and the outcome of group cognitive-behaviour therapy. *Australian and New Zealand Journal of Psychiatry, 33,* 70-76.

Paykel, E. S., Scott, J., Teasdale, J. D., Johnson, A. L., Garland, A., & Moore, R.. et al. (1999). Prevention of relapse in residual depression by cognitive therapy. *Archives of General Psychiatry, 56,* 829-835.

Persons, J. B., & Miranda, J. (1992). Cognitive theories of vulnerability to depression: Reconciling negative evidence. *Cognitive Therapy and Research, 16,* 458-502.

Peselow, E. D., Robins, C., Block, P., Barouche, F., & Fieve, R. R. (1990). Dysfunctional attitudes in depressed patients before and after clinical treatment and in normal control subjects. *American Journal of Psychiatry, 147(4),* 439-444.

Postolache, T. T., Hardin, T. A., Myers, F. S., Turner, E. H., Yi, L. Y., & Barnett, R. L. et al. (1998). Greater improvement in summer than with light treatment in winter in patients with seasonal affective disorder. *American Journal of Psychiatry, 155(11),* 1614-1616.

Rohan, K. J. (2002). Cognitive-behavioral approaches to seasonal depression (R03 MH0659-01A1). Behavioral Science Track Award for Rapid Transition (B/START), National Institute of Mental Health.

Rohan, K. J., & Sigmon, S. T. (2000). Seasonal mood patterns in a northeastern college sample. *Journal of Affective Disorders, 59,* 85-96.

Rohan, K. J., Sigmon, S. T., & Dorhofer, D. M. (2003). Cognitive-behavioral factors in seasonal affective disorder. *Journal of Consulting and Clinical Psychology, 71(1),* 22-30.

Rohan, K. J., Sigmon, S. T., Dorhofer, D. M., & Boulard, N. E. (in press). Cognitive and psychophysiological correlates of subsyndromal seasonal affective disorder. *Cognitive Therapy and Research.*

Rohan, K. J., Tierney Lindsey, K., Roecklein, K. A., & Lacy, T. J. (in press). Cognitive-behavioral therapy, light therapy, and their combination in treating seasonal affective disorder: A pilot study. *Journal of Affective Disorders*.

Rosen, L. N., Targum, S. D., Terman, M., Bryant, M. J., Hoffman, H., & Kasper, S. F. et al. (1990). Prevalence of seasonal affective disorder at four latitudes. *Psychiatry Research, 31,* 131-144.

Rosenthal, N. E., Sack, D. A., Gillin, J. C., Lewy, A. J., Goodwin, F. K., & Davenport, Y. et al. (1984). Seasonal affective disorder: A description of the syndrome and preliminary findings with light therapy. *Archives of General Psychiatry, 41,* 72-80.

Sakamoto, K., Nakadaira, S., Kamo, K., Kamo, T. et al. (1995). A longitudinal follow-up study of seasonal affective disorder. *American Journal of Psychiatry, 152(6),* 862-868.

Schwartz, P. J., Brown, C., Wehr, T. A., & Rosenthal, N. E. (1996). Winter Seasonal affective disorder: A follow-up study of the first 59 patients of the National Institute of Mental Health Seasonal Studies Program. *American Journal of Psychiatry, 153,* 1028-1036.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression.* New York: Guilford Press.

Simons, A. D., Garfield, S. L., & Murphy, G. E. (1984). The process of change in cognitive therapy and pharmacotherapy for depression. *Archives of General Psychiatry, 41,* 45-51.

Sotsky, S. M., Glass, D. R., Shea, M. T., Pilkonis, P. A., Collins, J. F., & Elkin, I. et al. (1991). Patient predictors of response to psychotherapy and pharmacotherapy: Findings in the NIMH treatment of depression collaborative research program. *American Journal of Psychiatry, 148(8),* 997-1008.

Terman, M., Terman, J. S., Quitkin, F. M., McGrath, P. J., Stewart, J. W., & Rafferty, B. (1989). Light therapy for seasonal affective disorder: A review of efficacy. *Neuropsychopharmacology, 2,* 1-22.

U.S. Department of Health and Human Services [USDHHS]. (1993). *Depression in Primary Care: Volume 1. Detection and Diagnosis (AHCPR Publication No. 93-0550).* Washington, DC: U.S. Government Printing Office.

Weissman, A., & Beck, A. (1978). *Development and validation of the Dysfunctional Attitude Scale.* Paper presented at the meeting of the Association for the Advancement of Behavior Therapy, Chicago, IL.

Weissman, M. M., & Bothwell, A. (1976). Assessment of social adjustment by patient self-report. *Archives of General Psychiatry, 33,* 1111-1115.

Wierzbicki, M., & Rexford, L. (1989). Cognitive and behavioral correlates of depression in clinical and nonclinical populations. *Journal of Clinical Psychology, 45,* 872-877.

Williams, J. B., Link, M. J., Rosenthal, N. E., Amira, L., & Terman, M. (1992). *Structured Interview Guide for the Hamilton Depression Rating Scale—Seasonal Affective Disorder Version (SIGH-SAD).* New York: New York State Psychiatric Institute.

Young, M. A. (1999). Integrating psychological and physiological mechanisms of SAD: The dual vulnerability model. *Biological Rhythms Bulletin, 1,* 4-6.

Young, M. A., Watel, L. G., Lahmeyer, H. W., & Eastman, C. I. (1991). The temporal onset of individual symptoms in winter depression: Differentiating underlying mechanisms. *Journal of Affective Disorders, 22,* 191-197.

Zeiss, A. M., Lewinsohn, P. M., & Munoz, R. F. (1979). Nonspecific improvement effects in depression using interpersonal skills training, pleasant activity schedules, or cognitive training. *Journal of Consulting and Clinical Psychology, 47(3),* 427-439.

Zettle, R. D., & Rains, J. C. (1989). Group cognitive and contextual therapies in treatment of depression. *Journal of Clinical Psychology, 45(3),* 436-445.